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ABSTRACT

This study examines the hypothesis that the labor supply for "lower level" occupations will be significantly reduced as a result of such trends as occupational upgrading of black workers, increased education, and the prospective reduction in number of new entrants to the labor force. Chapter I reviews a number of theoretical and empirical criteria for ranking of occupations and describes the methods followed in arriving at a status grouping of occupations for the present study. Chapter II includes a broad historical review of the earlier sources of manpower for lower level jobs, identifying the successive contributions of black workers, immigrants, farm-to-city migrants, and of other disadvantaged categories, in relation to the changing occupational needs of the economy. Chapter III presents the results of a detailed analysis of 1960-70 trends in occupational labor supply, by such characteristics as age, sex, race, educational level, and nativity. A technical appendix to this chapter describes the procedures followed in adjustment of 1960-70 Census occupational statistics for the trend analysis. And Chapter IV analyzes the relationship between labor supply and relative wages in lower-level occupations, based on examination of aggregate 1960-70 trends and on a cross-sectional analysis of inter-area wage differences based on 1970 Census data. (WL)

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THE LABOR SUPPLY FOR LOWER LEVEL OCCUPATIONS

FINAL REPORT
VOLUME I

Prepared for the
U.S. Department of Labor
Manpower Administration
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by

National Planning Association
1666 Connecticut Avenue, N.W.
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This study examines the hypothesis that the labor supply for "lower level" occupations will be significantly reduced as a result of such trends as occupational upgrading of black workers, increased education and the prospective reduction in number of new entrants to the labor force. Major earlier labor supply sources for these jobs had consisted of black workers, recent immigrants, farm-to-city migrants and younger workers During the 1960's, black workers moved out of the lowest category of the jobs (e.g., laborers, low wage service occupations) in large numbers but were generally replaced by white youth and women, as well as by recent low-skilled immigrants, in some areas. As a result, evidences of labor supply constraints were limited to the lowest-wage occupations, such as domestics and farm laborers. Manpower projections to 1985 indicate, however, that--under full employment conditions--labor requirements for lower-level occupations will grow more rapidly than labor supply, particularly because of the reduced inflow of youth into the labor force. (continued on next page)

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Major labor market adjustments are expected to include reduced employment in occupations with relatively elastic demand, such as domestics; increased relative wages in other occupations, such as construction laborers and hospital attendants; and continued movement of plants to low wage areas, in geographically mobile industries such as apparel manufacturing.

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PREFACE

Much of the voluminous literature on occupations in the American labor force has focused on the higher status occupations, particularly the professionals, the managers, the technicians and the highly skilled. This emphasis is understandable, since many of these occupations have been the "growth" occupations in our society: they are the ones which most young people aspire to and which call for the greatest investment in terms of formal education and specialized training. Conversely, research interest in "low status" or "low wage" occupations has been addressed mainly to the plight of workers engaged in these occupations -- the high incidence of poverty among them, the apparent entrapment of many non-white workers and other minorities in these occupations and their high turnover and unemployment rates. In this context, statistical indicators of the declining long-range trend in some of these occupations and of a movement of non-white workers out of these occupations have been viewed as positive measures of social progress.

Yet, any realistic assessment of the structure of jobs in the contemporary American economy indicates that many millions of American workers still occupy jobs which do not fit into the preferred categories. The least desirable of these jobs have many of the following characteristics: low skill requirements, low status, limited training or advancement opportunities, boring or menial duties, poor working conditions and -- typically -- low pay. Conceptually, these occupations tend to be the "jobs of last resort" for those workers who have no other viable choices in the labor market. Nevertheless, despite the march of technological progress, there is no evidence that these jobs will disappear, or wither away, in the near future.

Until now, these jobs have been disproportionately filled by "disadvantaged" population groups, particularly the blacks, the immigrants, the "poor whites" moving into our cities from farms or depressed rural areas and the least educated. The point of departure for the present study is a premise that a confluence of social and demographic forces has contributed to a sharp reduction in these earlier sources of supply of "low-level" manpower. These include the continued increase in educational attainment of the labor force; increased legal constraints on the number and types of immigrants admitted in recent decades; a slowdown in the volume of rural out-migration; and evidence of a significant exodus of black workers from many of the least-desirable occupations. Rising levels of family income, including social security and welfare payments, have also given many potential workers an effective choice of abstaining from conventional work activity entirely, in preference to accepting low status "demeaning" types of jobs.

Our second assumption is essentially optimistic: that, under assumed conditions of full or near-full employment, this same set of factors will continue to operate to further reduce the supply of workers for "low level" jobs -- at least, as these jobs are at present constituted and reimbursed. Particularly, we assume that there will be continued momentum in providing equality of opportunity to all segments of the population, both in terms of access to education and training and of access to the better jobs. In addition, the predictable reduction in the number of new young entrants into the labor force in the decade of the 1980's will further deplete the potential labor supply for these jobs.

Based on these premises, our research design has provided for: (1) development of "labor-supply relevant" criteria for ranking and grouping of occupations, to systematically identify these lower-level occupations; (2) an analysis of past sources of labor supply for these occupations, with particular emphasis on trends in the 1960-70 decade; (3) an analysis of the relationship between labor supply variables and relative wages in these occupations; (4) projections of occupational labor supply and demand to 1985; and (5) an assessment of the nature of probable future labor market adjustments, as well as of possible policy implications.

Chapter I reviews a number of theoretical and empirical criteria for ranking of occupations and describes the methods followed in arriving at a status grouping of occupations for the present study.

Chapter II includes a broad historical review of the earlier sources of manpower for lower level jobs, identifying the successive contributions of black workers, immigrants, farm to city migrants and of other disadvantaged categories, in relation to the changing occupational needs of the economy.

Chapter III presents the results of a detailed analysis of 1960-70 trends in occupational labor supply, by such characteristics as age, sex, race, educational level and nativity. A technical appendix to this chapter describes the procedures followed in adjustment of 1960-70 Census occupational statistics for our trend analysis.

Chapter IV analyzes the relationship between labor supply and relative wages in lower-level occupations, based on examination of aggregate 1960-70 trends and on a cross-sectional analysis of inter-area wage differences based on 1970 Census data.

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Chapter V presents projections of the "expected" labor force by broad occupational groups in 1980 and 1985, and compares these with projected trends in employment (or labor requirements) to identify potential surpluses or deficits under full employment conditions.

Chapter VI includes a more detailed analysis of labor force, employment and wage trends in four low-level occupations -- household maids, construction laborers, apparel operatives and hospital attendants -- to provide insights as to factors affecting past and prospective labor market adjustments in these occupations.

Chapter VII summarizes our major findings and discusses their policy implications.

Also included, as an appendix to this report, are supplemental papers on two key occupations: domestic maids, by Peter Mattila, and hospital attendants by Neal Rosenthal and Dixie Sommers.

* * * * *

This study was conducted over a three-year period, from July 1972, to June 1975. An interim (Phase I) report, including Chapters I-III and a preliminary version of the manpower projections appearing in Chapter V, was completed in October 1973. The second phase includes the materials in Chapters IV, VI and VIII, and the supplementary reports, as well as a revision and extension to 1985, of the manpower projections appearing in Chapter V.

In preparation of this report, the undersigned received invaluable support from his associate, Bruce D. Phillips, in the planning and design of the statistical analyses and projections, in the case study of construction laborers and in preparation of initial drafts of certain sections of the final report, notably the technical appendix to Chapter III and portions of Chapter IV-VI.

We are particularly indebted to our colleague, Mark Kendall of the National Planning Association, for technical advice on the econometric cross-sectional analyses of occupational wage differentials, in Chapter IV, and on the occupational labor force projections, in Chapter V.

We are indebted, too, to Margaret Takenaka, who served outstandingly as administrative assistant to the project, and to Y.J. Tien, Albert Gillespie and Sally Wagley, who provided statistical support.

It would be difficult to identify all of the individuals who provided information or advice on various aspects of the study. The following individuals were particularly helpful: Stanley Greene, John Priebe and Larry Suter of the Bureau of the Census; John Bregger, Denis Johnston, John Lukasiewiez and John Stinson of the Bureau of Labor Statistics; Dr. Lazare Teper, Research Director of the International Ladies Garment Workers Union; Carl Pressland, economic consultant to the American Apparel Manufacturers Association; Marion Parsons, Training Director for the Laborers' International Union of North America; Alan Fechter of the Urban Institute; Robert Kahn, Director of the Survey Research Center, University of Michigan; Otis Dudley Duncan, University of Michigan and Ann Miller, University of Pensylvania.

Stuart Garfinkel and Ellen Sehgal of the Office of Research and Development, Manpower Administration of the Department of Labor, served successively as monitors of this study, and provided many helpful comments and suggestions.

Finally, our discussion of major policy issues, in Chapter VII, relied -- in good measure -- upon insights obtained from the concurrent assessment of policy implications conducted by the NPA Joint Committee on "Lower Level" jobs, chaired by Dr. William Bowen.

The findings and recommendations in this report are, however, those of the authors, and do not necessarily represent the views of the National Planning Association.

Harold Wool

THE LABOR SUPPLY FOR LOWER LEVEL OCCUPATIONS

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Chapter I

The Dimensions of Low Status Work: Theory and Measurement

The existence of a broad hierarchy of occupations, closely linked to both social status and material rewards, has been a basic characteristic of human societies. Historically, the most unpleasant tasks in this hierarchy were assigned to an underclass, sharply defined in terms of caste or status. In pre-industrial societies, the heavy unskilled labor of the most onerous type, as well as the menial housekeeping duties, were often performed by slaves or bondsmen or by forced labor levies upon the peasant population.

In modern industrial societies, the substitution of mechanical power and machinery has reduced, but not eliminated, the requirement for heavy physical labor and has altered the nature of many of the other unpleasant duties previously performed by forced labor. Technological advance has also been accompanied by a great proliferation of occupational specialties. The immense variety of goods and services and the high degree of division of labor characteristic of modern industry have resulted in multi-fold increases in the number of occupational designations. The most comprehensive cataloguing of these occupations, the Labor Department's "Dictionary of Occupational Titles" (D.O.T.) includes definitions of more than 35,500 occupational titles in its current edition.[1/]

This process of occupational specialization has complicated the task of defining occupational strata or ladders, and, hence, of identifying the characteristics of the social groups performing these activities. It has, in fact, led some scholars to question the validity of any single vertical scaling of occupations, in terms of status or relative desirability. Nevertheless, faced with overwhelming evidence that occupations do vary widely in monetary rewards, in social status, and in the inherent pleasantness or unpleasantness of the work and its surroundings, social scientists from diverse disciplines have devoted considerable effort to studies of the factors contributing to occupational differentiation in our society.

The systems of occupational classification and ranking developed by various investigators have varied widely depending upon the criteria employed and the intended uses. It is possible to group these broadly into two categories, depending upon the principal classification criteria employed, as: (A) systems based on analysis of occupational duties and qualifications, and (B) systems based on occupational rewards, whether the latter are defined in monetary or nonmonetary terms. These alternative systems are reviewed in the following sections, to assess their relevance and utility for the purposes of this study. In the latter part of the chapter, an alternative system for occupational stratification is presented.

A. Rankings Based on Occupational Duties and Qualifications

A central task of occupational analysis and classification has been to identify and group together, as single occupations, those jobs which are substantially similar in terms of work performed and in the qualifications needed to perform this work. The degree of specification of occupations in various occupational classification systems has varied widely, depending upon the uses intended and other considerations. For example, the DOT has been designed for operational use by the public employment service and other labor market agencies, in matching individuals and jobs. This has dictated a very detailed cataloguing of occupations and job titles. Comprehensive statistical data on the distribution of the labor force based on this classification are however not available.

The Census Bureau, on the other hand, has employed a much more abbreviated list of "detailed" occupations, for use in recent decennial Censuses and in its monthly sample labor force surveys, notably, 297 occupations in the 1960 Census and 441, in the 1970 Census. In the Census occupational scheme, for example, many thousands of titles for specific semi-skilled operative jobs, which are unique to a given industry or function, have been broadly categorized as "operatives, not elsewhere classified," although tabulated separately by industry group. This coarse-grained approach to occupational classification, characteristic of most national population censuses, has been necessitated in large part by practical data-gathering considerations. Information on an individual's occupation obtained from household surveys is too imprecise to permit use of a very detailed occupational classification scheme, particularly if derived from responses of persons other than the individual worker. Moreover, the past uses made of the Census occupational data, typically for broad economic and sociological studies, have placed greater emphasis on analysis of broader occupational groupings rather than on the detail for specific occupations.

Inherent in the "job content" approach to occupational analysis, under either the D.O.T. or Census classification systems, has been an effort to group and rank the various occupations into broader classes based on certain common functional characteristics, as well as on their relative complexity. Until 1940, the principal criterion followed in the grouping of occupations for the decennial United States censuses had been industrial affinity rather than skill level. With the notable exception of certain white collar occupations, such as professionals and clerical workers, the detailed Census occupations had been grouped by broad industry category. Under this approach, for example, managers, as well as laborers, employed in manufacturing industries were classified separately from those performing similar duties in transportation or trade.

With the 1940 Census, a revised scheme of occupational grouping was introduced by the Census Bureau, based in large part on the work of Alba M. Edwards -- for many years the Census expert on occupational statistics. The rationale for these new occupational groupings, as originally developed by Edwards, was "to bring together into an occupationally homogenous group all of the workers belonging to the same socio-economic class, with but minor regard to the particular occupations they pursue or to the particular part of the industrial field in which they work." 2/ The original Edwards socio-economic groups consisted of the following six broad classes:

1. Professional persons
2. Proprietors, managers and officials (farmers; wholesale and retail dealers; other)
3. Clerks and kindred workers
4. Skilled workers and foremen
5. Semi-skilled workers
6. Unskilled laborers (farm laborers; laborers, except farm; "servant classes")

The grouping, it will be evident, made a broad distinction between the white collar and blue collar occupations, and in accordance with conventional wisdom placed the former at the top of the occupational hierarchy. The rationale for the grouping, as a whole, was recognized by Edwards to be a "hybrid", which gave weight to both social status and economic criteria.

Empirically, educational attainment (years of school completed) was cited by Edwards as a guide to social status, and annual income, as a measure of economic status. Thus, Edwards justified the ranking of clerical workers above skilled craftsmen on the ground that the "social" factor, as reflected in higher educational attainment of clerical workers, outweighed the "economic" factor, as reflected in the higher median earnings of the craftsmen.

One of the features of the Edwards classification of special interest for our present study was an attempt to group manual workers into three broad skill-level categories, based on such considerations as length of training, degree of judgment and of manual dexterity, ability to work with limited supervision and degree of responsibility for valuable product and equipment. The "skilled workers" encompassed most of the conventional craft occupations, mechanics and foremen, as well as policemen and firemen. Included among the semi-skilled group, in addition to the bulk of the operative occupations, were certain intermediate-level service occupations, such as barbers, guards, housekeepers, practical nurses and hospital attendants. At the bottom of the occupational ladder, based on these criteria, was the broad class of "unskilled workers", including farm laborers, non-farm laborers (including miners) and the "servant classes" -- the latter including such occupations as domestics, waiters, cooks, charwomen, janitors and porters.

The classification of occupations by major occupational groups actually adopted by the Census Bureau in 1940 (and which has been largely retained until the present) deviated in a number of respects from that formulated by Edwards. The Census groupings have continued to reflect the distinction between "white collar" and "blue collar" occupations. However, within the latter category, the Census Bureau has departed from Edward's original attempt to broadly distinguish among occupations on the basis of a formal skill-level hierarchy -- notably in the treatment of workers in service-type occupations. The latter, rather, have been treated functionally and consolidated into two separate "service worker" occupational groups -- one for private household workers, the other for all other non-professional service workers, irrespective of skill level. Manual workers, other than service workers, have moreover been grouped under occupationally descriptive titles, i.e.: "Craftsmen, Foreman and Kindred Workers;" "Operatives and Kindred Workers;" "Laborers and Kindred Workers," rather than in terms of an explicit statement of skill level.

Since these Census groups were developed pragmatically to serve a wide range of possible interests, it was inevitable that they would not prove ideal for any specific research or analytical design -- whether for economic analysis of wage structures or for studies of class structures in our society. Both economists and sociologists have been particularly critical of the heterogenous nature of certain of the major occupational groupings. For example, the Census group identified as "Managers and Officials, except Farm" combines within one category, the highest ranking governmental and corporate officials with operators of hot dog stands. Similarly, the Census group for "Service Workers, excluding Household Workers" ranges from police detectives, marshals and sheriffs to charwomen and bootblacks.

The decision by the government statisticians to avoid an explicit ranking by occupations by "skill level" was probably influenced by a number of considerations, not least of which were the obvious limitations of the occupational information obtainable under mass Census procedures. In part, too, it was undoubtedly influenced by the inherent difficulties of any rank ordering of occupations, based on available job content criteria. Increasingly, occupational analysts had become aware of the multi-dimensional character of occupational duties. Different occupations entailed exercise of different types of human abilities (mental, physical, mechanical, etc.), as well as different orders of difficulty. Any attempt to convert these into a single ordinal scale in ascending "skill order" was likely to be based in part on subjective judgment factors and therefore was rendered vulnerable to criticism.

These same considerations have influenced the structuring of occupations under the Dictionary of Occupational Titles. The first edition of the D.O.T., published in 1939, included groupings of occupations analogous to the Census major groups, and were based generally on similarity of work performed or on technical job content. These jobs were in turn arranged within each functional category in order of skill level, i.e., "skilled", "semi-skilled" or "unskilled". The third edition, issued in 1965, replaced this skill level grouping with a new six-digit code which classified jobs, not only in accordance with earlier functional job content criteria, but in terms of the worker traits or characteristics associated with each job. This supplemental code is designed to reflect the relative complexity of each job in three broad dimensions, defined as "Data", "People" and "Things". Thus the fourth digit of the code (Data) ranks each job in order of difficulty in handling of data, from "comparing" and "copying" at the lowest levels to "synthesizing" and "coordinating", at the highest. Similarly, the order of difficulty under the sixth digit (Things) ranges from "handling" at the bottom, to "setting up" and "precision working" at the top.

In addition to this coding system, "worker trait" profiles have been developed for some 14,000 defined job titles, in which groups of jobs are described under a series of more specific worker traits, including the general education development (GED), specific vocational preparation (SVP), and physical demands required of the worker.[3]

It will be evident that this multi-dimensional classification scheme complicates any simple hierarchical approach to occupational groupings. The rationalization for this departure is provided by Sidney Fine, an occupational psychologist who played a major role in the revision of the DOT:

> "Although the skilled, semi-skilled and unskilled breakdown may have been useful and may have had some meaning up until about the turn of the century before modern technology began to dominate the job picture, it is inaccurate and irrelevant today. To replace it, there is the concept that people function on a continuum of difficulty from the simple to the complex and that the patterns of functioning are diverse. For example, a worker may function on a simple level in relation to Things, on a complex level with regard to Data, and on an intermediate level with regard to People. In an analysis of 4,000 jobs, 72 possible and 45 actual combinations were found."[4]

Despite these reservations, several investigators have attempted to use the body of occupational analysis data incorporated in the current Dictionary of Occupational Titles for analysis of occupational structures. Thus, James Scoville undertook a comprehensive restructuring of the Census list of detailed occupations, based on D.O.T. job content criteria, on the premise that the existing Census "socio-economic" grouping of occupations was poorly adapted to economic analysis of wage structures and labor mobility and for related studies of labor supply and demand. For this purpose, Scoville defined 18 "job families", based on broad functional groupings, and arranged each of the Census occupations in five skill level groups within the appropriate job families. To develop the latter ranking, Scoville used -- as a point of departure -- a "worker traits characteristics" analysis of a sample of 4,000 D.O.T. job titles developed by staff of the U.S. Employment Service, which included estimates of educational and vocational training time requirements for each job. Scoville regrouped the D.O.T. occupations into about 200 Census occupations and derived average values, or rankings, for the latter based on these criteria. The results obtained from this procedure were admittedly crude in a number of respects. The element of subjective judgment entailed in the initial USES staff assignment of values to jobs, in terms of educational aptitude requirements, was further compounded by the task of assigning each of 4,000 D.O.T. occupations to about 200 Census occupational categories. As a result, Scoville was compelled on a judgmental basis to reassign a number of occupations to more appropriate skill levels than those derived by his use of the "worker traits" data.[5]

In order to forge a more reliable statistical bridge between the D.O.T. and the Census occupational classifications, the Office of Management and Budget initiated a pilot study under which the occupational returns from a one-month sample of the Census Bureau's Current Population Survey, for October 1966, were recoded on the basis of the D.O.T. An initial analysis of these data, by Ann Miller, has included a distribution of general educational development (GED) requirements of occupations of men and women in the experienced civilian labor force for each of the D.O.T. major occupational groups and for selected subgroups.[6]

Unfortunately, similar tabulations expressed in terms of the Census occupational classifications have not been derived from this study, thus precluding any direct linkage between this possible scaling criterion and the variety of other characteristics which are available only in terms of the Census occupational classifications. Inspection of the derived GED requirements for various occupational groups also raises serious questions as to the usefulness of the GED criterion as shown in the DOT. To illustrate, the median computed GED requirement for the protective service occupations group, including such jobs as policemen, firemen and guards, is shown as GED-3, equivalent to an 8th grade educational level. This is about the same as that computed for female domestic service workers and lower than that shown for men in farming and allied occupations. It is difficult to reconcile these scalings with other information concerning the relative educational demands of these occupations.

More fundamentally, our review of efforts to derive a skill-level ranking of occupations based on job-content analysis and on estimates of the length of formal education or training required has illustrated certain inherent difficulties in this approach. The available data suggest that although the education and training requirements criterion can readily differentiate between the most skilled and the least skilled occupations, they have limited explanatory power in differentiating among many middle level and lower level occupations which do, in fact, appear to differ significantly in relative attractiveness and in the rewards provided. It is evident that many other variables related to the intrinsic nature of the work and the work environment and not directly correlated to training time criteria are relevant to determination of occupational status.

For this reason, most studies of occupational stratification have relied on use of "reward" criteria rather than on functional job content analyses.

B. Rankings Based on Occupational Rewards

The occupational reward criteria followed by various investigators in assessing the relative "value" or desirability have, understandably, varied depending upon their respective disciplines and research objectives. Thus, from Adam Smith on, most economists -- while recognizing that occupations differ in both pecuniary and non-pecuniary rewards -- have tended to rank occupations in terms of the value assigned to these occupations by the market place, as reflected in differential wage rates or income streams.

The focus of sociologists in their studies of occupational hierarchies has been primarily related to their interest in social class structure and social mobility. Social status or prestige rankings of occupations have been developed for this purpose.

Finally, social psychologists and those in allied behavioral science fields have had a primary research interest in identifying those aspects of work and of the working environment which contributed to personal job satisfaction or dissatisfaction, i.e., in meeting human wants, broadly defined.

We shall briefly review below, the contributions -- both theoretical and empirical -- stemming from this diverse body of literature.

1. The Theory of Occupational Wage Differentials

The cause of inequality of wages among different classes of workers has long been a focal point of interest for economists and has in turn directed their attention to the factors influencing supply, as well as demand, for workers in the various occupations. In a classic chapter devoted to this theme, Adam Smith attributed the wide observed differentials in earnings from different occupations to two sets of circumstances: first, those inherent in the nature of the occupation itself and, secondly, those attributable to constraints upon a fully competitive market. Occupations differed inherently in the investment of time and cost required to qualify in them, as well as in many other respects. Among the latter, Smith identified such factors as the physical ease or hardship of the work, its "cleanliness or dirtiness", the social respect or "honorableness" accorded the occupation, the degree of responsibility entailed, its regularity of employment and the probability of success or failure. The normal structure of occupational wage differentials, under conditions of competitive equilibrium, thus reflected "the whole of the advantages and disadvantages" of different occupations. These were modified, however, by various institutional constraints on the free movement of labor, such as apprenticeship or licensing regulations, as well as by short-term fluctuations in demand for specific occupations or industries.[7/]

As in so many other aspects of economic thought, this initial formulation by Adam Smith served as a point of departure for the work of succeeding generations of economists. In principle, Smith's formulation implied a continuum, in which each occupation could be matched with all other occupations based on its respective advantages and disadvantages and where the interaction of supply and demand would tend to equalize "the whole of the advantages and disadvantages" of the different types of work in a particular labor market. This analysis could not however be fully reconciled with the realities of the 19th century wage structure: it was apparent that many of the most undesirable occupations -- those involving heavy and dirty work and commanding little social respect -- received the lowest wages, while many of the professions which commanded high prestige and high intrinsic interest appeared to receive a higher wage differential than would appear to be justified by their additional training investment.

To explain this phenomenon, John Stuart Mill advanced an explanation based on the existence of rigid class boundaries which served to restrict access to the more desirable occupations. This concept of an occupational hierarchy was further developed by J. E. Cairnes in his theory of "non-competing" groups, in which he described the broad occupational strata as follows:

> What we find, in effect, is, not a whole population competing indiscriminately for all occupations, but a series of industrial layers, superimposed on one another, within each of which the various candidates for employment possess a real and effective power of selection; while those occupying the several strata are, for all purposes of effective competition, practically isolated from each other. We may perhaps venture to arrange them in some such order as this: first, at the bottom of the scale there would be the large group of unskilled or nearly unskilled labourers, comprising agricultural labourers, labourers engaged in miscellaneous occupations in towns; or acting in attendance on skilled labour. Secondly, there would be the artisan groups... The third layer would contain producers and dealers of a higher order... engineers, chemists, opticians, watchmakers, and others of the same industrial grade... above them would be a fourth, comprising persons still more favourably circumstanced...learned professions, etc... 8/

Alfred Marshall, in commenting on the occupational structure of British industry towards the close of the 19th century, suggested that the earlier formulations by Mill and Cairnes, based on a rigid class stratification, had been undermined by the process of job breakdown and specialization: "We cannot any longer regard different occupations as distributed among four great planes; but we may perhaps think of them as resembling a long flight of steps of unequal breadth, some of them being so broad as to act as landing stages. Or even better still we might picture to ourselves two flights of stairs, one representing the 'hard handed industries' and the other 'the soft handed industries', because the vertical division between these two is in fact as broad and as clearly marked as the horizontal division between any grades.[9]

Under Marshallian theory, the net marginal product of each class of labor, resulting from the interaction of both supply and demand factors, determined its wages. The fact that work of a disagreeable, or dirty nature, was often also the lowest paid work was attributed by Marshall to the relatively large supply which, in turn, reduced the incentive for employers to rationalize such jobs. "Hence arises the paradoxical result that the dirtiness of some occupations is a cause of the lowness of the wages earned in them. Few employers find that this dirtiness adds much to the wages they would have to pay to get the work done by skilled men of high character working with improved appliances; and so they often adhere to old methods which require only unskilled workers of but indifferent character and who can be hired for low (time-) wages, because they are not worth much to any employer."[10]

From this brief review, the theoretical model of the occupational wage structure developed by the 19th century economists, may be summarized as follows: The "dependent variable" of interest to the economist was relative wages. Under competitive equilibrium conditions, the supply of labor for different classes of occupations determined the normal (long-run) structure of occupational wage differentials. The major occupational supply factors (or independent variables) were: (1) training and educational investment; and (2) non-pecuniary factors affecting preference or "tastes" for different occupations (working conditions, inherent job interest, social status, etc.). To varying degrees, all of these theories also recognized imperfections in the market for workers in various skill categories due to a combination of supply constraints; i.e., (1) the existence of "non-competing groups" based on class structure and/or on unequal access to education and training opportunities, and (2) various other institutional constraints limiting the free access of labor to various occupations, whether stemming from governmental regulations, from the operation of guilds or unions, or other factors. Further, since labor supply tended to be relatively inelastic in the short term, fluctuations of wages in particular occupations were largely determined by fluctuations in demand for the various classes of workers, as reflected in their net marginal product.

While not completely abandoning the major elements of the classical theory, contemporary economists, relying upon a wide range of empirical studies, have increasingly questioned its relevance in explaining observed patterns of wage differentials, as well as other aspects of labor market behavior. They have noted that the emergence of large-scale collective bargaining and of "internal labor markets", as well as increased governmental intervention in the wage setting process, have all tended to institutionalize wage structures to a degree not anticipated by the classical economist -- as evidenced, for example, by the persistence of wide inter-industry disparities in rates of pay for given occupations in the same labor market. Moreover, mobility of workers in response to differential wages has been restricted by such factors as seniority and pension rights, by various constraints on free entry into occupations and by lack of full labor market information on the part of workers.

The concept of "non-competing" labor markets, originally developed by Mill and Cairnes over a century ago, has also been applied, in more modern form, to explain the operation of the labor market in urban ghetto areas. A "neo-Cairnesean" concept of the segmented labor market, advanced by Edgeworth in the 1920's, was further developed in the past several years by Peter Doeringer, Michael Piore, Barbara Bergmann, Bennett Harrison, and by a number of other economists. This theory postulates that, as a result of pervasive discrimination, certain categories of workers in the labor force, such as black ghetto residents, have been mainly confined to a "secondary" labor market, consisting of the least desirable jobs -- jobs with such characteristics as low wages, low status, unpleasant working conditions, little or no promotion opportunities and unstable employment patterns. The de facto exclusion of most black workers from "mainstream" jobs under this theory has resulted in an overcrowding of workers into the less desirable jobs and has served to depress wage rates in these jobs. Moreover, among those whose options are confined to this category of jobs, exclusion has induced a lifestyle antagonistic to stable employment. Similar reasoning has also been used to explain observed adverse wage differentials for other groups subject to systematic labor market discrimination, such as women.[11/]

However, despite a considerable volume of recent literature on the dual or segmented labor market, this concept has to date not yet been adequately subjected to rigorous empirical analysis. Studies by economists which have attempted to distinguish between the "good" and "bad" jobs have usually tended to treat low wage jobs as synonymous with "bad" jobs, in the absence of other readily quantifiable occupational characteristics. Alternatively, use has at times been made of classification schemes developed by sociologists and social statisticians for somewhat different purposes, as discussed below.

2. Occupations and Social Status

Sociological interest in the study of occupational stratification has stemmed in part from the theories of Karl Marx and his 19th century followers, who focused on the emerging class of industrial workers as the vehicle of social revolution. The unique feature of the new industrial system, for Marx, was the separation of the worker from ownership of the means of production and from control over the productive process. Analysis of the impact of industrialization and of the accompanying division of labor upon the occupational/social class structure thus became a central theme in early Marxist writings. Other non-Marxist sociologists, including Max Weber and Emile Durkheim, also contributed to the study of work roles and of occupations, particularly in relation to emerging concepts of social classes and social prestige strata. Contemporary sociologists, while recognizing that other variables also affect social stratification, have continued to rely heavily upon occupational position as the prime determinant of social status.[12/] The central role of occupational position for sociological analysis has, in turn, prompted a search for suitable criteria for a social status ranking of occupations.

The strong influence of sociological theory upon occupational classification practices is illustrated by the efforts by Alba Edwards, as well as earlier government statisticians, to establish a "socio-economic" grouping of occupations as a frame of reference for analysis of broad occupational trends in the United States. This scheme was, as discussed above, only partially adopted in the official structuring of Census occupations by major occupation groups which has been in effect since 1940.

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In the face of the obvious limitations of the official Census occupational groupings, sociologists began experimenting with more objective approaches to ranking occupations by social status, based on the use of occupational prestige surveys. The unique feature of the prestige yardstick is the effort to obtain a single ranking or hierarchy of occupations based -- not on an analysis of specific attributes of these occupations -- but rather on the composite judgment of a population cross-section in which each respondent compares the relative standing or social desirability of each of a particular list of occupations or job titles with that of the other occupations on the list. Experimentation with this survey technique in the United States began with a pioneering inquiry by George S. Counts in 1925, followed by a series of such surveys which differed considerably in sample size and design, in occupational coverage and in the questions used to elicit prestige ranking. Despite these differences in methodology, the resulting overall rankings have been found by some observers to be "remarkably close to invariant" over a period of several decades, and -- to a considerable extent -- independent of variation in the composition of the particular respondent groups. Moreover, comparisons of similar surveys in other countries indicated substantial consistency of rankings in a wide range of countries.[13]

One of the major limitations of the prestige survey method, however, is that this technique cannot readily be applied to the full spectrum of occupations in the labor force. It has not been practicable to include in any survey the full list of 300 or more separate occupational designations included in the recent Censuses of Population nor -- obviously -- the many thousands of more specific job titles by which these occupations are commonly

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known. To illustrate, one of the most comprehensive prestige surveys conducted in the United States was that conducted by the National Opinion Research Center (NORC) in 1947. This survey covered a total of 90 titles of which only 45 could be reasonably matched with detailed occupations as reported in the 1950 Census. Efforts have been made to fill this gap by linkage of results of successive surveys. Paul Siegel thus developed consolidated prestige ratings, expressed in a standard metric, for all of the detailed 1960 Census occupations. The author was however careful to note that, because of variations in occupational titles, only a "poor" match could be achieved for nearly one-half of the Census occupations.[14/] Moreover, careful reviews of prestige survey rankings have indicated that the high overall correlations achieved are due mainly to consistency in the placing of occupations at the higher and lower extremes of the scale, with much larger deviations in ranking of the broad middle-level group of occupations.[15/]

To meet the need for a social class ranking system or index which could readily be applied to all occupations in the labor force, Otis Duncan developed an index of "social-economic status" (SES) in the early 1960's. The index, derived from 1950 Census data on male workers, is based on a weighting of two variables: education and income. Education is measured on the basis of the percentage of male workers in each occupation with four years of high school or more; income, based on the percentage of males in each occupation with incomes of $3,000 or more in 1949. A multiple regression between NORC prestige ratings for 45 occupations, comparable to Census occupations in their titles, and these two variables (standardized for age differentials) had produced a correlation coefficient of .91. Based on this empirical finding, these two variables, weighted by their respective coefficients of regression, were then used to derive an SES scale for each detailed 1950 Census occupation.[16] A similar method was also developed by Census Bureau staff to derive socio-economic status scores for each occupation.[17]

The Duncan index, when combined for major Census occupational groups, has tended to confirm the broad ranking implicit in Edwards occupational groupings: professional, technical and kindred workers receive the highest SES score, followed by non-farm managers, while non-farm laborers and domestics receive the lowest scores, (Table 1). At the same time, the Duncan scores, as well as similar prestige or social status rankings have all indicated a wide variation of ratings for individual occupations within these broad occupational groups. For this reason, extensive use has been made of the Duncan ratings, or similar scales, in lieu of the standard Census groupings, in studies designed to measure status of individuals, where information on their specific occupation is available.

Despite its wide use, some limitations of the Duncan index should be noted: First, since occupational "prestige" has been normally measured for men, the Census statistics used by Duncan in deriving SES ranks related to male workers only. Such data are not necessarily representative of occupational status for those occupations predominately staffed by women. Secondly, the income data used by Duncan in his formula refer to money income of men in 1949. These Census data have many limitations as a measure of differential occupational earnings because they included part-year, as well as full-year, workers and because of the importance of income in kind in certain occupations, such as farming. Finally, the numerous revisions in detailed Census occupational classifications since 1950 have complicated any direct application of the Duncan scale to the more recent (1970) Census data.

More fundamentally, the "prestige" measure -- as well as the SES index -- suffer from some conceptual difficulties when applied to studies of labor market behavior. On the one hand, the partial correlation between prestige and earnings conforms to expectations, derived from economic theory, that those occupations which are most highly "valued" in market terms also tend to command greater prestige -- both because they reflect possession of a relatively scarce skill with high demand in society and because the resulting high pay makes such occupations more attractive. On the other hand, the partial correlation of prestige or status with education -- holding income constant -- is subject to varying interpretations, not clearly developed in the sociological literature. Alba Edwards, in his rationale for use of both of these criteria had formulated the relationship as follows: "Education is a very large factor in the social status of workers, and wage or salary income is a very large factor in their economic status."

Other explanations of this observed relationship are, however, equally plausible. For example, given the fact that relative income, alone, provides an admittedly imperfect measure of the true market value of different occupations (both because of the many non-market factors influencing the wage structure and because of the technical limitations of available income and wage statistics), it is possible that the education variable mainly reflects some of the non-monetary factors which make some occupations inherently more desirable than others, such as differences in fringe benefits and job security, in long-term income opportunities, physical working conditions, social work environment and the intrinsic nature of the work itself. The latter work values have been explored, in depth, by a number of behavioral scientists, as described in the following section.

3. Occupational Differentials in Job Satisfaction

In contrast to the studies of economists and sociologists, who have attempted to differentiate among occupations based on some measure of social rewards -- whether defined in terms of money wages or of social status or prestige -- a number of behavioral scientists have attempted to assess the relative desirability of employment in different occupations based on its psychological impacts upon the individual worker. They have, in fact, attempted -- mainly through job satisfaction survey techniques -- to develop a latter-day "felicific calculus," to measure the full stream of satisfactions and dissatisfactions associated with the work experience, in all its dimensions. In the process, a large body of theoretical literature has also emerged, which may be broadly defined as "work motivation" and "job satisfaction" research.

As in the study of social status of occupations, some of the theoretical origins of job satisfaction research can be found in Marxian theory which postulated that the objective separation of industrial workers from control over the means of production would have as its subjective counterpart a deep-seated alienation of wage workers from the industrial system in which they were entrapped. Although this theoretical framework has been reflected in some of the more recent literature on worker "alienation," much of the empirically-based research on job satisfaction since the 1920's has in fact been fostered by management itself, with the aim of development of personnel policies conducive to improved morale, reduced turnover, increased productivity and related management objectives. The scope of interest in worker satisfaction issues is suggested by the fact that some 2,000 empirical studies of job satisfaction have been catalogued in the United States since the 1920's. These have ranged from studies of workers in particular establishments or occupations to surveys of national cross-sections of the working population.[18] The methodology generally used has been to query workers both on the degree of their overall satisfaction or dissatisfaction with their job, as well as to probe on specific aspects of their work or work environment which they found either satisfying or dissatisfying. These studies have often correlated the job satisfaction responses with related information on worker and job characteristics, job changing plans, work interests, generalized psychological attitudes, and -- to a much more limited extent -- with certain work behavior patterns, e.g., turnover, absenteeism, productivity.

A central premise in much of the research literature on job satisfaction is that, quite apart from the economic rewards for work, the intrinsic nature of the work has a great influence upon the degree of satisfaction derived from different types of jobs. When viewed from this perspective, work is valued by the individual, not merely or exclusively as a source of income, but in terms of its contribution to an individual's self-esteem, social status and sense of fulfillment. One formulation, by Frederick Herzberg, distinguishes between "extrinsic" and "intrinsic" job factors. Extrinsic factors, such as inadequate pay, poor supervision or bad physical working conditions may lead to dissatisfaction. But positive job satisfaction depends on the provision of intrinsic factors, such as achievement, responsibility and challenging work. Proponents of this theory further contend that with rising education and affluence, a growing proportion of American workers are placing greater emphasis on intrinsic job content in their occupational choices, as against material rewards, such as higher pay or improved working conditions: "What workers want most, as more than 100 studies in the past 20 years show, is to become masters of their immediate environments and to feel that their work and themselves are important -- the ingredients of self-esteem."[19/]

The emphasis upon work contents as a prime source of job satisfaction has inevitably led to comparative analyses of job satisfaction in different types of occupations or work situations. Robert Blauner, in a review of the pertinent survey literature available in the late 1950's, summarized his findings as follows: "Work satisfaction varies greatly by occupation. Highest percentages of satisfied workers are usually found among professionals and businessmen. In a given plant, the proportion satisfied is higher among clerical workers than among factory workers, just as in general labor force samples it is higher among middle-class than among manual working class occupations. Within the manual working class, job satisfaction is highest among skilled workers, lowest among unskilled laborers and workers on assembly lines."[20/] Blauner and other observers have also noted that these rankings tend to correspond closely to other measures of occupational status or prestige, such as Edwards socio-economic groupings.

In contrast to approaches designed to develop a single generalized index of jobssatisfaction, more recent research has emphasized that job satisfaction has many dimensions and must be interpreted as the product of an interaction between the individual worker with his work environment. The degree of variability in satisfaction with various aspects of work, within any occupation, as well as the general ordering of satisfaction-ratings among various occupations is suggested by a summary analysis by Converse and Robinson, based on a survey of 1244 adults in urban areas of the United States. This analysis summarizes worker ratings of seven different job aspects in a total of 28 occupations.[21/] Inspection of these data indicates that the overall pattern of ratings by occupational group conforms to that indicated by earlier job satisfaction and prestige surveys. Thus, professional occupations and other higher status white collar jobs tend to receive above-average ratings on all of the seven job characteristics. Notable exceptions are artists and musicians, who understandably give low ratings to the pay and security aspect of their professions. Conversely, low-skilled manual workers report an above-average amount of dissatisfaction with most aspects of their work. Thus laborers rate their jobs poorly in terms of all seven job aspects and operatives rate their jobs poorly in all aspects other than pay. Household workers rate their jobs poorly with respect to all aspects other than "freedom to plan," while other personal service workers and sales clerks also rate their jobs below-average on a majority of the job aspects shown. The skilled crafts, as well as most clerical and sales jobs, generally fall into an intermediate position in these ratings.

This summary serves to illustrate some of the strengths and limitations of the job attitude survey methodology for analysis of occupational preferences or occupational studies. On the one hand, the surveys -- although varying widely in scope and methodology -- do serve to differentiate between financial rewards of work and other significant work characteristics, such as physical working conditions, social interactions, degree of autonomy exercised, the opportunity to use their skills and other intrinsic job aspects. To the extent that occupational choices are influenced by both measurable financial rewards and by a variety of less-measurable qualitative factors, the large volume of attitudinal research emphasizing the latter variable has contributed to our understanding of their relative importance. For example, initial findings from the Ohio State University longitudinal study of labor market behavior indicate that young men who place greather emphasis on intrinsic job factors, i.e., the "kind of work" they are doing, are more likely to have a higher attachment to their current job than those emphasizing pay, thus tending to corroborate Herzberg's thesis that intrinsic factors are generally the source of positive job satisfaction.[22]

Nevertheless, any effort to use the available results of job satisfaction research in an empirical scaling of occupations is fraught with many difficulties. The most apparent is the lack of occupational detail. The great majority of the job satisfaction surveys have been limited to particular, small segments of the labor force. Differences in methodology, timing and coverage have handicapped any attempts at systematic comparisons. Those surveys which have sampled all, or most, of the labor force such as recent surveys conducted by the University of Michigan's Survey Research Center, have been based upon samples too small to permit a dissagregation of the data much below the level of major occupational groups. Moreover, interpretation of the survey findings has been rendered difficult by the fact that, over a period of years, only a small percentage of workers surveyed have in fact expressed dissatisfaction

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with their jobs: "Few people call themselves extremely satisfied with their jobs, but still fewer report extreme dissatisfaction. The modal response is on the positive side of neutrality -- "pretty satisfied."[23]

Although there have been many hypotheses concerning these response patterns, the result has been a tendency to discount findings based on responses to generalized questions, such as "how satisfied are you with your job" and to rely on alternative approaches, such as analysis of specific job aspects or on responses to questions of the type: "If you had to decide all over again whether to take the job you now have, what would you decide?" Responses to the latter type of questions tend to provide much sharper differentiation among occupations, but -- as noted by Kahn and others -- may represent no more than another measure of the status or prestige ranking of various occupations, thus yielding little additional information to our understanding of the process of occupational choice.

C. Comparison of Available Occupational Ranking Criteria

Our review of the major approaches taken by social scientists in development of occupational rankings has revealed a wide divergence in criteria and methodology as well as common handicaps imposed by limitations of available source data. Despite these differences, the resulting ordering of occupations has been quite consistent in the delineation of both extremes of the occupational spectrum. This is illustrated by the average rank ordering of Census major occupational groups in Table 1 under three separate set of criteria: Duncan's social-economic status index; Siegel's composite prestige ranking data, and Scoville's analysis of "job contents." It must be emphasized that these rankings are composites representing our weighted averages of the specific rankings for 200 or more detailed Census occupations within these major groups and that there is wide divergence of rankings among many of the specific occupations from the group averages. Nevertheless, under all of these ranking systems, professional and technical workers and non-farm managers and proprietors appear at the head of the list, whereas laborers and domestic servants are assigned the lowest ranks. Operatives and service workers, other than protective service, are generally at the next lowest rungs of the occupational ladder, above the laborers and domestics.[24]

There is somewhat less consistency, however, in ranking of occupations in the intermediate range of status. For example, sales workers receive a higher average ranking under Duncan's index than they do in the other two studies cited, probably because Duncan's data reflects the status of men sales workers who are concentrated in the more technical and better-paying sales activities. Conversely, craftsmen and protective service workers are ranked above the sales workers group by both Siegal and Scoville, whereas Duncan assigns these groups lower average ranks. Other marked divergences among these three approaches are found in the ranking of farmers and of protective service workers.

Our own assessment suggests that both the correspondence in broad ordering of occupations as "high" or "low-level" occupations, and the ambiguities in ordering of the large "middle-level" range of occupations can be explained by the basic criteria and methodologies followed in the various systems of occupational ranking. On the one hand, all of these systems have had at least one common denominator: they have, directly or indirectly, assigned major weight to the relative difficulty of entry into occupations, as reflected

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Table 1

Rankings of Major Census Occupational Groups Under Alternative Criteria

Occupational Group	Social-Economic Status 1/	Prestige 2/	Job Contents 3/
Professional and Technical	1	1	1
Managers, Officials and Proprietors, excl. Farm	2	2	2
Clerical and Kindred Workers	3	4.5	5
Sales Workers	4	7	6
Craftsmen, Foremen and Kindred Workers	5	4.5	3.5
Protective Service Workers	6	6	3.5
Operatives and Kindred Workers	7	8	8.5
Farmers and Farm Managers	8	3	7
Other Service Workers	9	9	8.5
Private Household Workers	10	10	10.5
Laborers, (Farm and Non-Farm)	11	11	10.5

1/ Rankings based on weighted indices of income and educational attainment of male workers for specific 1960 Census occupations. Adapted from Otis Dudley Duncan, "Socio-economic Status Scores for Detailed Occupations," University of Chicago, Population Research and Training Center, October 1961.

2/ Rankings based on integrated results of several prestige surveys conducted by the National Opinion Research Center, University of Chicago. Adapted from Paul M. Siegel, "Prestige in the American Occupational Structure." Unpublished Ph.D. dissertation, Department of Sociology, University of Chicago, March 1971.

3/ Rankings adapted from materials in James G. Scoville, The Job Content of the U.S. Economy, 1940-1970, McGraw Hill, 1969. Appendix I.

in the length and cost of the training required. Measures of the social-economic status of occupations, such as Duncan's index, give direct weight to educational attainment. Scoville's analysis of job contents is heavily weighted by a factor designed to measure relative educational demands of different occupations, as were earlier attempts to differentiate occupations by skill level. And prestige surveys, too, appear to be heavily influenced by this factor.[25/]

The extent of formal education and training required for entry into the various occupations is however most clearly defined at both extremes of the occupational spectrum and least adequately, for the broad middle range. At the upper extreme, nearly all professional and salaried management occupations now require, as a minimum standard, completion of a four-year college program and/or a first-professional degree. At the lower extreme, most unskilled labor jobs still have few, if any, requirements for either formal education or specific occupational training. Understandably, therefore, virtually every approach to occupational rankings has placed the first group at the top and the latter at the bottom of the job hierarchy.

Between these two extremes, it is far more difficult to differentiate among occupations in terms of the amount of formal educational or training preparation needed. The data on general educational demands of occupations in the U.S. labor force compiled by Ann Miller based on DOT "worker traits" analyses suggest that these formal educational demands are in fact quite limited, i.e., about one-half of all jobs in the contemporary labor force require no more than an elementary school level of education while an additional one-third require only the equivalent of a high school diploma.[26/] Of course, many of the latter occupations -- such as skilled mechanics and other craftsmen -- also impose requirements for substantial periods of specific vocational preparation, either in formal courses or through on-the-job training and work experience. Nevertheless, it is apparent that the criterion of length of education or training can do little to differentiate among a large and diverse array of less skilled jobs, whether white collar or blue collar.

As suggested by our preceding discussion, a host of additional variables do, in fact, make some of these jobs much more desirable for the average worker than other jobs. The effect of these other work-related variables is reflected in varying degrees and forms by the available indices. Thus Duncan, in assigning about equal weight to occupational earnings in his index of social-economic status, implicitly supports the contention of classical economists that, despite some market imperfection, occupational wage differentials do tend to reflect "the whole of the advantages and disadvantages" of different occupations. The occupational prestige surveys, as well as the job satisfaction research, represent alternative (although related) approaches towards measuring the full range of qualitative variables at work. In view of the many difficult methodological and conceptual problems it is scarcely surprising that these approaches have produced somewhat different occupational scalings.

D. An Alternative Approach to Identification of Low Level Jobs

In the preceding sections we have compared a number of available methods for measuring occupational stratification and have discussed some of their limitations. Our review did suggest that most of the available criteria produced generally consistent results in broadly identifying the lowest level of occupations. Closer inspection of comparative rankings for specific occupations did, of course, reveal much more substantial variation in rankings. However, an "averaging" out of several of the available criteria could have been expected to produce generally credible results and was, in fact, computed at an early stage of the present study.

There were two sets of considerations which impelled us, nevertheless, to develop an alternative method of ranking occupations. The first consisted of technical problems stemming from a major revision in occupational classifications and enumeration procedures introduced in the 1970 Census. The second stemmed from our interest, in the present study, in developing a "labor supply relevant" ranking of occupations which would serve to group together those occupations, which based on empirical labor market criteria, were most likely to experience a reduction in potential labor supply under existing relative wages and working conditions in the event of a continuation of recent trends towards a better-educated and more homogenous labor force.

From a technical standpoint, a number of major changes in the 1970 Census procedures had, at least in part, rendered obsolete the occupational rankings developed by investigators such as Duncan, Siegel and Scoville, on the basis of occupational data from the 1950 or 1960 Censuses. The changes introduced in the 1970 Census -- the most far-reaching in their effect since 1940 -- had, as major objectives : (1) an improvement in the definition and coding of specific occupations and corresponding reduction in the large number of respondents previously reported in such catch-all categories as "Operatives, Not Elsewhere Classified" or "Laborers, Not Elsewhere Classified", and (2) an improvement in the accuracy of enumeration procedures for reporting of occupational information.

The revisions in occupational definition and classification resulted in an increase in the number of specified occupations from 297 in 1960 to

441, in 1970, as well as in substantial revision in coverage of many of the original 1960 list of occupations. In an effort to increase the number of respondents assigned to specific occupations, rather than to the "n.e.c." categories, extensive use was made of computer coding and editing, as a supplement to manual coding. In order to improve the accuracy of responses concerning occupation, two additional questions were inserted in the 1970 enumeration schedule: one requesting a description of major duties performed; the second, the individual's formal job title. (Further details are found in the technical appendix). The combined effect of these revisions was to result in a major break in comparability of Census data for large numbers of specific occupations between 1960 and 1970. As a result, it proved impracticable to analyze trends in composition of many specific lower-level occupations between 1960 and 1970, particularly in the Operatives and Non-Farm Laborer groups. Most of the operative occupations, other than transport operatives, as well as the non-farm laborers, were grouped by us into large occupational categories. These were however disaggregated for our study, by broad industry groups, (e.g., operatives in the textile, apparel and leather products industries), based on information included in the Census public use sample tapes, based on the 1960 Census of Population. However, since these special occupation-industry combinations did not correspond to published Census data for 1960 or earlier years, no rankings for these groups were available in the existing occupational stratification literature.

More fundamentally, none of the available indices, as we have noted, were originally designed to provide what we have termed a "labor supply relevant" ranking of occupations. Two of these scales -- Duncan's and Siegel's -- are both designed to provide a measure of an individual's social or prestige status based on his occupation. There is no assurance that the criteria relevant to a general societal evaluation of occupations necessarily correspond to those motivating individual workers to enter or remain in these jobs. The third index, Scoville's rankings by "job contents," is designed to measure relative skill level or complexity as determined, mainly, by the estimated "general educational development" required. This index, therefore, does not purport to reflect the full range of factors (monetary or non-monetary) which are likely to influence occupational preference.

As an alternative to these approaches, our point of departure is the premise that different groups of workers in the labor force, as defined by such characteristics as race, age, educational level and sex, have widely differing ranges of job options in the contemporary labor market. Thus, under labor market conditions existing in the 1960's and earlier, there is abundant evidence from the extensive literature on employment discrimination that -- other factors being equal -- employers generally tended to favor whites over non-whites, adults over youth and those with at least a high school diploma over those with less education. In many occupations and industries, employers also gave systematic recruitment preference to men over women. The many factors contributing to these patterns of labor market discrimination have been subject to intensive study from a number of perspectives. These need not concern us directly here; it is sufficient that these patterns have existed on a pervasive scale throughout our economy. They can be readily illustrated by the observed differentials in unemployment rates, for a recent year, by age, sex, color and educational attainment, as shown in Table 2. In each of the separate comparisons shown, the "preferred" labor force group

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Table 2

Unemployment Rates by Selected Socio-Demographic Characteristics, March 1970

	Percent of Labor Force Unemployed
TOTAL CIVILIAN LABOR FORCE, 18 YEARS AND OVER	4.2%
AGE:	
18-24 Years	8.3
25 Years and Over	3.3
RACE:	
White	3.9
Non-White 1/	6.7
EDUCATIONAL LEVEL:	
Less than High School Graduate	5.6
High School Graduate or More	3.4
SEX:	
Men	3.7
Women	4.9

Source: Adapted from Educational Attainment of Workers, March 1969, 1970. Special Labor Force Report 125, U.S. Department of Labor, Bureau of Labor Statistics, Tables B, K, L.

1/ The term "non-whites" as used here and in subsequent tables in this report normally refers to "Negroes and other races".

has experienced unemployment rates substantially below the "less preferred" group. The unemployment rate differentials, when these separate groups are cross-classified, are of course far wider. For example, the unemployment rate in March 1970 for black youths, aged 18-24 years, who were high school dropouts was 21%, or more than ten times as great as the rate of 2% for adult white workers, aged 25 years and over, who had completed one or more years of college.

A second premise underlying our method is that workers do, in fact, have a collective occupational preference schedule in which alternative jobs are compared in terms of relative desirability based on their perception of such attributes as pay, job contents, working conditions and other characteristics, and on the relative importance they assign to each of these factors in their job choice. This is supported by the extensive survey literature on occupational prestige, career goals and job satisfaction. For example, numerous occupational prestige surveys have indicated high degrees of consistency in ranking of occupations, in terms of desirability, by individuals from widely varying occupational and socio-economic backgrounds. Similarly, recent surveys of career goals of high school youth show a disproportionate concentration (in terms of available jobs) of aspirants to the more elite professional, managerial and skilled occupations, and very low proportions, who look forward to entering the lower status occupational groups.[27/]

If these premises are valid, the actual differential occupational distribution of those labor force groups who have a preferred status in the labor market, i.e., who have the broadest job options, provides a sensitive measure of relative occupational preferences of American workers. Such a measure, based on observed compositional characteristics of the various occupations, has the obvious advantage of eliminating the need for subjective judgment factors on such imponderables as the relative importance of financial vs. psychic rewards in occupational choice or of attempting to estimate the relative costs or difficulties of qualification in different occupations.

The specific occupational index used for the present study was based on the percentage of white workers, with 12 or more years of education for the age group 25-34 years, as computed for each of 57 occupations or occupational "clusters," from the Census public-use sample for 1960. These values, expressed as percentiles, based on the size of the experienced civilian labor force, in each occupation in 1960, are shown in Table 3. This index therefore directly reflects the combined effect of two major factors affecting occupational opportunity in the contemporary labor market: education and race. The selection of a single age group of young adult workers is designed to more accurately reflect occupational choices made by such workers in the years immediately preceding 1960, thus eliminating possible biases from inclusion of older age groups of workers, who entered and often remained in occupations based on labor market conditions in earlier periods, or from inclusion of youth, whose occupational choices as a group are much more constrained (particularly in the case of those engaged in part-time employment.)

The index was computed for both sexes, combined, partly because sample size limitations did not permit a further disaggregation of the 1960 data by sex. However, in order to test the extent to which a "sex-standardized" index would have affected the resulting rankings, we subsequently computed such an index for 1970 based on the somewhat larger public use sample for the latter year.

Table 3

Selected Occupational Status Indices

Occupation and Status Group	Occupational Status Indices (Percentile Ranks)				
	ECLF, 1960 (000)a/	Labor Force Composition b/	Socioeconomic Status c/	Prestige d/	Mean Earnings, Full Time 1960 e/
STATUS GROUP I					
Engineers	870	97.8	96	95	8478
All Other Professional and Technical Workers f/	3448	90.3	91	90	6448
Teachers, Excl. College	1682	87.0	92	92	5240
Medical Personnel g/	1325	84.6	86	95	5082
STATUS GROUP II					
Bookkeepers	940	83.1	79	81	3685
Secretaries, Typists, Stenos.	2312	79.6	86	71	3801
All Other Sales Workers, Excl. Retail Clerks	2088	75.6	83	57	6554
Non-Farm Managers, Total	5489	69.0	86	83	8087
All Other Clerical and Kindred Workers h/	2437	61.8	82	52*	--
Office Machine Operators	315	61.1	74	75	4112
Telephone Operators	369	60.4	74	67	3695
Policemen, Firemen, etc. i/	426	59.3	63	75	5383
Sales Clerks, Retail Trade	2720	56.9	67	34*	3283
Cashiers	495	56.3	73	36	3171
Postal Clerks, Mail Carriers	423	55.6	77	66	5306
STATUS GROUP III					
Foremen, n.e.c.	1198	54.1	77	75*	6679
All Other Craftsmen j/	1879	51.1	63	52*	5771
Mechanics, Excl. Auto	1594	48.3	56	46	5243
Deliverymen, Routemen	441	47.5	57	30	4190
Metalworking, Crafts, Excl. Mechanics, Machinists	607	46.6	61	56	5932
Farmers, Farm Managers, Unpaid Farm Workers	2812	43.9	31	58	3023
Electricians, Brickmasons, Excavating Machine Operators, etc. k/	1239	41.7	62	58	5604
Machinists	516	40.9	58	82	5696
Checkers, Examiners	518	40.2	37	48	4614
Operatives, Non Durable Goods Mfg. Incl. Chemical, Petroleum Industries, etc. l/	832	38.5	45	23	--
Barbers, Bartenders, Practical Nurses, etc. m/	1431	36.9	49	31	3559
Operatives, Transport Equipment Mfg.	538	35.8	50	53	5520
Carpenters	924	34.4	44	60	5008

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Table 3

Selected Occupational Status Indices

(continued)

Occupation and Status Group	Occupational Status Indices (Percentile Ranks)				
	ECLF 1960 (000) a/	Labor Force Composition b/	Socioeconomic Status c/	Prestige d/	Mean Earnings Full Time 1959 e/
STATUS GROUP IV					
Taxi Drivers, Bus Drivers etc. n/	422	33.8	37	31	--
Auto Mechanics	705	32.4	44	57	4229
Operatives, Non-Manufacturing Industries, Total	1776	29.4	46	18	4548
Auto Service and Parking Attendants	379	28.8	44	17*	3185
Operatives, Metal Working Industries o/	2028	25.4	52	55*	4786
Guards and Watchmen, Crossing Guards and Bridge Tenders	281	25.2	40	17*	4412
Housekeepers and Babysitters	506	24.8	20	28	1096
Housekeepers	152		(44)	(46)	--
Babysitters	354		(10)	(20)*	--
Waiters and Counter and Fountain Workers	1063	23.2	31	13	2118
Shipping and Receiving Clerks, Messengers and Office Boys	357	22.0	52	27	4419
Laborers, Metal Working Industries p/	399	21.8	N.A.	N.A.	4582
Operatives, Food and Tobacco Industries	555	20.9	33	21*	--
Construction Painters, Plasterers, Cement and Concrete Finishers, Roofers, Paperhangers	589	20.0	35	36*	4686
Hospital Attendants	408	19.3	20	41*	2661
Truck and Tractor Drivers	1663	15.4	30	38*	4696
Operatives, Textiles, Apparel, Leather Industries	1826	12.8	17	25	3119
Packers	497	12.0	41	10	3674
Welders, Flamecutters	390	11.3	53	60	5460
Operatives, Lumber, Furniture, Stone, Clay & Glass Industries	578	10.4	30	23*	4096
STATUS GROUP V					
Laborers, Non-Manufacturing Industries, Excl. Construction	1407	8.6	N.A.	N.A.	3478
Janitors, Sextons	624	8.1	15	7*	3184
Cooks	599	7.4	15	24	2916

Table 3

Selected Occupational Status Indices
(continued)

Occupation and Status Group	Occupational Status Indices (Percentile Ranks)				
	ECLF, 1960 (000)a/	Labor Force Composition b/	Socioeconomic Status c/	Prestige d/	Mean Earnings, Full Time 1959 e/
STATUS GROUP V (cont.)					
Construction Laborers	776	6.1	N.A.	N.A.	3805
Laborers, Lumber, Furniture, Stone, Clay & Glass Industries	373	5.6	N.A.	N.A.	4077
Laborers, Non-Durable Goods Mfg. q/	346	5.1	N.A.	N.A.	4062*
Farm Laborers, Paid	1241	3.3	09	13*	2163
Kitchen Workers	332	3.0	18	17	2302
Laundry and Dry Cleaning Ops.	410	2.5	30	10	2248
Cleaners & Charwomen, Porters, Chambermaids, Elevator Operators	610	1.8	09	07	2425
Private Household Workers, n.e.c.	1310	0.3	10	10	1116

a/ The experienced civilian labor force, by occupation was computed from the recoded 1/1000 1960 Census Public Use Sample tape, released July 1971.

b/ Based on percentage of white workers, with 12 or more years of education in the experienced civilian labor force, of each occupation for the age group 25-34 years, in 1960, derived from the 1/1000 sample of the Public Use tape.

c/ The socioeconomic status percentile scores were derived from Otis Dudley Duncan, "Socioeconomic Status Scores for Detailed Occupations." University of Chicago, Population Research and Training Center, October 1961, with appropriate interpolations. Occupation/industry coverage not precisely comparable.

d/ The prestige percentile scores are from Paul M. Siegel, "Prestige in the American Occupational Structure." Unpublished Ph. D. Thesis, Department of Sociology, University of Chicago, March 1971, with appropriate interpolations. Asterisked items had a poor match between the Census occupation title and the actual title rated in the Hodge-Siegel Prestige surveys.

e/ Wage and salary income of workers employed 35 hours or more in Census reference week, and who were employed 48 weeks or more in 1959.

f/ Includes all other professional and technical workers not elsewhere classified.

g/ Includes physicians, dentists, medical and dental technicians, and all other health occupations classified as professional.

h/ Includes all other clerical and kindred workers not elsewhere classified.

i/ Includes policemen, firemen, marshals and constables, sheriffs and bailiffs.

j/ Includes all other craft workers not elsewhere classified.

k/ Includes electricians, brickmasons, excavating, grading, and road machinery operators, plumbers, and pipefitters, and structural metalworkers.

l/ Includes operatives not elsewhere classified in the following non-durable goods industries: paper and allied products, printing and publishing, chemicals and allied products, petroleum and coal products, rubber and plastic products, not specified non-durable manufacturing.

m/ Includes barbers, bartenders, practical nurses, attendants, recreation and amusement, ushers, and all other service workers not elsewhere classified.

n/ Includes taxi drivers, bus drivers, rail conductors, subway motormen, mine motormen, railroad brakemen, railroad switchmen, and boatmen and canalmen.

o/ Includes operatives, not elsewhere classified, in the following industries: metal industries, machinery, except electrical, electrical machinery, professional and photographic equipment, miscellaneous manufacturing.

p/ Same industrial distribution as for operatives in footnote o.

q/ Includes laborers in all non-durable goods industries.

The procedure followed was to compute separate occupational indices for each sex and to weight the indices by the respective proportions of men and women in the labor force of each occupation as of 1970. Thus, in effect, the relative standing of "female-type" occupations, such as secretaries or domestic servants was determined largely by the comparative proportion of white women high school graduates in such occupations. Comparison of the resulting rankings with those derived from the percentiles for both sexes combined revealed no significant difference, however, as indicated by a correlation coefficient (R) of .993 between the two rankings.

The limited impact of sex differentiation upon occupational status may appear surprising, in view of the massive evidence concerning job and pay discrimination against women generally in the labor market. It is probably explained by the fact that the de facto segregation of large numbers of working women in certain occupations has, in part, taken the form of relatively high concentrations of women in white collar-type jobs, such as office and sales work. Such occupations, although generally offering lower pay than available to male counterparts with similar qualifications, tend to command higher status than many of the more onerous but higher paying industrial and laborer jobs, which are predominantly staffed by men.

In addition, the need to rely upon relatively broad Census occupational subgroupings in the present study has necessarily blurred the differentiation by sex which exists among the more specific occupations within these subgroups. To illustrate, all professional and technical occupations were combined, for our purposes, into only four occupational subgroups: engineers, medical personnel, teachers and "all other" professional and kindred workers. The medical personnel subgroup includes a broad range of professional and technical occupations in the health field, from physicians and dentists to medical and dental technicians. The former "high status" occupations include a very small percentage of women; the "lower status" technician occupations, a very high percentage. Predictably, a more refined occupational classification scheme would have revealed more status differentiation by sex than suggested by our comparisons, particularly among occupations within the white collar group. However, further disaggregation within the latter category was not considered relevant in view of our primary focus upon "lower level" occupations, and -- in most instances -- was not practicable, because of technical constraints of intercensal comparability and sample size.

Based on this index, the 57 occupational clusters used for this analysis have been grouped into five broad occupational status groups in lieu of the conventional Census occupational categories. In establishing these groups, an effort was made to delineate group boundaries in a way to assure maximum correspondence with matching Census occupational groupings, consistent with the percentile ranking scores of the occupations. Group I thus corresponds to the Census group, "Professional, Technical and Kindred" workers. Group II includes most remaining white collar occupations, with the exception of one subgroup including shipping and receiving clerks, messengers and office boys. It also includes policemen, firemen and allied protective service workers. Group III includes foremen; most of the skilled craftsmen, mechanics and repairmen; operatives in certain high-wage industries (e.g., transportation equipment, chemicals, petroleum, etc.) and certain of the more skilled service occupations (e.g., barbers and beauticians, bartenders, practical nurses). Group IV includes most of the "operatives" occupational group (exclusive of those in Group III and of laundry workers); certain low-level clerical occupations, such as shipping clerks; automobile mechanics, construction painters, plasterers, roofers, cement and concrete workers; certain intermediate-level service occupations, such as waiters, hospital attendants and housekeepers; and laborers in metal-working industries. Group V in turn includes both farm and non-farm laborers (exclusive of those in metalworking industries); domestic servants; other personal service workers (cooks and kitchen workers, janitors, charwomen and cleaners, etc.,) and laundry and dry cleaning operatives.

The percentile rankings derived from this index have been compared in Table 3, with percentile rankings adapted from the Duncan S.E.S. index and from Siegel's prestige index, and with the mean 1959 earnings of full-time workers employed in these occupations in 1960. These comparisons produced correlations (R) of .923 with the Duncan index and of .843 with Siegel's composite prestige ratings for the approximately 50 occupations for which comparisons could be made. The simple correlation between this index and median full-time wage and salary earnings was relatively low (.604). However, when allowance was made for the differential proportion of males in the various occupations, the partial correlation between earnings and our status index, holding sex constant, increased to .735.

A relatively high correlation with the Duncan index was to be expected in view of the fact that the percentage of high school graduates is a common component of both indices although based on different rationales. (Duncan had however computed his index based on 1950 data for men only and had given nearly equal weight to occupational income.) The correlation with the Siegal prestige index appears quite reasonable when allowance is made for the differences in purpose of the two measures and for the inherent limitations of the occupational prestige survey technique, as noted earlier in this chapter.

Finally, a lower correlation of our occupational status scale with earnings than with "status" or "prestige" is also consistent with our understanding of the many non-pay factors which enter into occupational preferences, as well as because of the large role played by institutional factors in influencing the pattern of occupational wage differentials.

Although the above comparisons, as well as other checks on the reasonableness of our criteria, have tended to support the usefulness of this index for our specific purposes, some of its limitations should be clearly noted:

1. Our primary objective, in developing the above index, was to arrive at a means for ranking of occupations, based on occupational preferences of workers in order to: (1) differentiate among "high level," "middle level" and "lower level" occupations, broadly grouped, and (2) to differentiate, particularly, among more specific occupations within the lower and lower-middle levels of this preference scale. This emphasis resulted, as noted above, in our use of relatively broad aggregations of "higher level" occupations, i.e., in the professional and managerial categories, since the latter were of secondary interest in the present context.

2. This broader occupational clustering has produced some apparent anomalies. For example, "Non-farm Managers and Officials" are ranked below "Bookkeepers," "Secretaries," and "Sales Workers, other than Retail Clerks." This, we believe, is at least partially due to the heterogenous nature of the broad "managerial" group, which includes large numbers of small proprietors of retail stores and similar establishments, as well as smaller numbers of top executives in government and business.

3. More generally, it has been apparent that further refinements based on larger samples than the Census 1:1000 public use sample and on additional standardization (e.g., by region or size of community) could further improve the usefulness of this approach for a broader range of occupational studies. Thus, small differences in occupational position, based on the present method, cannot be considered as significant.

4. Finally, to the extent that our methodology is based on the premise of pervasive "labor market discrimination" on such grounds as race and educational level, any major change in the degree or nature of such discrimination, would either invalidate this approach or require its modification for future years.[28/] In fact, to the extent that some categories of employers, such as the federal government, were less discriminatory in the hiring of non-white workers than other employers, prior to 1960, our index does tend to lower the relative ranking of those occupations, such as postal clerks, whose employment was concentrated in the "less-discriminatory" sectors. Unfortunately, there is little indication that this factor produced any appreciable distortion in our occupational rankings as of 1960.

Chapter 1
Footnotes

1/ Dictionary of Occupational Titles, 1965, Vol. 1, 3rd edition. U.S. Department of Labor, Manpower Administration (Washington, D.C.: Government Printing Office, 1965) p.x.v.

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9/ Alfred Marshall, Principles of Economics, London: MacMillan and Co., p. 181.

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11/ A review of this recent literature appears in David M. Gordon, Theories of Poverty and Underemployment: Lexington Books, 1972.

12/ See for example, Peter M. Blau and Otis Dudley Duncan, The American Occupational Structure, John Wiley and Sons, 1967, Chapter 1.

13/ Ibid., p. 119. See also Paul M.Siegal, Prestige in the American Occupational Structure, Unpublished doctoral dissertation, The University of Chicago, March 1971, Chapter I.

14/ Paul M. Siegal, op. cit. Table 5.

15/ A.F. Davies, "Prestige of Occupations", in Sigmund Nosow and William H. Form, Man, Work and Society, New York: Basic Books p. 263.

16/ Blau and Duncan, op. cit., Chapter 4.

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Chapter 1
Footnotes
(continued)

18/ Results of these surveys have been periodically summarized since 1946 by Robert Hoppock in the Personnel and Guidance Journal. See also: Robert Blauner, "Work Satisfaction and Industrial Trends in Modern Society" in Walter Galenson and Seymour Martin, editors, Labor and Trade Unionism, John Wiley and Sons, 1960, pp. 339-360, and Robert Kahn, "The Meaning of Work: Interpretation and Proposals for Measurement" in Angus Campbell and Phillip E. Converse, The Human Meaning of Social Change (New York: Russell Sage Foundation, 1972) pp. 173-4.

19/ Work in America, Report of a Special Task Force to the Secretary of Health, Education and Welfare (Cambridge, Mass.: MIT Press, 1973).

20/ Blauner, op. cit., p. 341.

21/ Campbell and Converse, op. cit., pp. 186-187.

22/ Herbert S. Parnes and Associates, Career Thresholds, Volume I, Manpower Research Monograph No. 16, 1970, U.S. Department of Labor, pp. 149, 155. This report notes however, that a similar relationship was not evident in a comparable analysis of a cohort of older male workers.

23/ Robert Kahn, "The Meaning of Work and Proposals for Measurement" in Campbell and Converse, op. cit., p. 169.

24/ Our inspection of available summaries of job satisfaction survey findings by occupational groups indicates that these, too, generally conform to the rank orderings outlined above. However, disparities in occupational classification and other methodological problems have precluded a simple rank ordering of these findings by Census occupational groups.

25/ See Paul K. Hatt and C. C. North, "Prestige Ratings of Occupations," in Nosow and Form, op. cit., p. 277.

26/ Ann Miller, op. cit., p. 39.

27/ Parnes and Associates, Career Thresholds, Volume I, op. cit., p. 172.

Chapter II

Changing Sources of Low Level Manpower: A Historical Perspective

A. The Slavery Era

In the preceding chapter, we reviewed several criteria for identifying the occupations which ranked lowest in desirability in the contemporary labor market. We found a broad consensus that these jobs consisted, predominantly, of low-skilled laborer, service and operative occupations, and that these shared certain characteristics, notably: limited skill or educational requirements, heavy physical and/or socially demeaning work, unpleasant working conditions and -- typically -- low pay.

Despite their wide differences in job contents, these occupations shared one other common characteristic: the duties they entailed had in fact become specialized functions, performed by particular categories or classes of workers, under the prevailing division of labor. The emergence of large-scale requirements for "lower level manpower" therefore coincided historically with the evolution of forms of economic organization which differentiated between a "laborer," "wage earner" or "servant," class, on the one hand, and an ownership or managerial class, on the other.

Such differentiations had long been traditional in the caste and class-dominated societies of the Old World. However, one of the unique features of the American experience was the limited and uneven development of a distinctive "laboring" class of free wage earners in the first two centuries following the settlement of the American colonies. The ready availability of land and the opportunities to follow one's own calling as an independent farmer, artisan or merchant, were the chief lodestones attracting the early European immigrants here, from colonial days on to the early decades of the 19th century. In 1820, over 90% of the population was still rural, and of a total estimated labor force of 3.1 million, 2.5 million or nearly 80% was engaged in farming activities.[1] In the North, as well as in the Piedmont South, the dominant pattern was that of the small independent farmer, cultivating his own land with the aid of his family and occasional hired help, and performing the myriad tasks associated with survival in a frontier agrarian society. Newly arrived immigrants, as well as the sons and daughters of farmers, provided a limited source of hired labor both in the towns and in rural areas, but this was usually transitory until they moved on to their own farms or to establish their own households.

In contrast, a large-scale plantation economy had emerged in the Tidewater South and in the newly opening lands of the Delta region, centered on production of basic export staples, such as tobacco, cotton, rice and sugar, and whose very structure became linked to availability of imported slave labor. Some indication of the relative importance of slave manpower during this period is provided by Lebergott, based on his analysis of early Census data and other historical source materials. Of a total gainfully occupied population of 2,470,000 in agriculture as of 1820, he estimates that 1,040,000 were farmers (owners or tenants), 515,000 were "free" farm laborers including family workers and 915,000 were slaves. (Table 4.) Lebergott further estimates that only 665,000 were engaged in all non-agricultural occupations in 1820. Even if we assume that as many as two-thirds of the latter were performing unskilled labor or service activities, slave labor still accounted for at least one-half of the supply of "low-level" manpower at that time.

Table 4

Estimated Distribution of United States Labor Force, Age 10 and Over, by Industry and Class of Worker: 1800, 1820, 1840, 1860

(In Thousands)

Year	Total Labor Force	Agriculture				Non-Agriculture			
		Total	Farmers	"Free" Farm Laborers	Slave Laborers	Total	Mfg.	Other Non-Ag. (Excl. Domestics)	Domestic Service
1800	1,900	1,400	600	310	490	500	N.A.	N.A.	40
1820	3,135	2,470	1,040	515	915	665	N.A.	N.A.	110
1840	5,660	3,570	1,440	720	1,410	2,090	500	1,350	240
1860	11,110	5,880	2,540	1,120	2,220	5,230	1,530	3,100	600

Source: Adapted from Stanley Lebergott, op. cit., pp. 510, 511.

The decades between 1820 and the outbreak of the Civil War witnessed a rapid upsurge of industry and trade, with the introduction of the factory system, the rapid growth of urban centers, and the establishment of a growing transportation network of turnpikes, canals and the first railroads. By 1860, the United States labor force had grown nearly four-fold, to more than 11 million and, of this total, nearly one-half, 5.2 million workers, were engaged in non-agricultural activities. Although comprehensive occupational statistics are not available for this period, it is clear that the expansion of industry, construction and trade entailed a greatly increased requirement for unskilled and semi-skilled wage workers and for allied service occupations.

In large part, this need was met from the swelling stream of free immigrants drawn to our shores both by the "pull" of economic opportunity and by the "push" of grinding poverty, famine or political turmoil in their homelands. The annual rate of immigration mounted, in almost geometric progression, from an average of less than 10,000 per year in the early 1820's to a pre-Civil War peak of nearly 400,000 per year in the early 1850's.2/

These mid-19th century immigrants were drawn almost entirely from the countries of Northern and Western Europe. Two nationality groups predominated, the Irish and the Germans, with immigrants from Great Britain, other Northwest European countries and nearby Canada accounting for all but a small percentage of the remainder.3/ The pattern of geographical and occupational distribution of these earlier immigrant groups -- as of those to follow -- appears to have been largely influenced by two sets of variables: (1) the "capital" stock which they brought with them, in the form of prior occupational skills, education and financial resources, and (2) the specific economic opportunities available to them at the time of their arrival, which in turn were a function of the differential rates of growth in the various industries and trades, as well of the ability of various nationality groups to gain entry into the more desirable occupations, based on their social acceptance (or non-acceptance) by ethnic groups already established in these occupations here.

Among the major immigrant groups of this period, the Germans and Irish offer the most obvious contrasts in terms of social and economic status. The German immigrants, who arrived in particularly large numbers in the late 1840's and 1850's, following the 1848 Revolution, included a large proportion of political refugees and intellectuals, as well as of individuals who had been either independent farmers or skilled workmen in Germany. Many of them moved westward to the farm areas and the emerging urban centers of the Ohio Valley and Great Lakes regions. These German immigrants, according to one authority, were in greater demand than those of other nationalities. "They were considered to have sturdy characters, law abiding instincts, habits of industry, painstaking zeal, honesty and intelligence."[4]

The Irish, on the other hand, probably ranked lowest in social status among the principal immigrant nationality groups of this period. Their handicaps were succinctly summarized by John R. Commons, as follows: "They were ignorant, poor and held to the Roman Catholic faith."[5] The Irish early established concentrations in the large Eastern seaboard cities of Boston, New York and Philadelphia, as well as in smaller New England cities and towns. To a greater degree than any other nationality group in this period, the men provided the unskilled labor for construction of canals and our early railroads and for similar heavy manual work in cities such as dock or stable hands. Their wives and daughters took work in large numbers as domestic servants, as well as in textile, shoe and other light manufacturing industries.

In the process, these recent immigrants appeared to have displaced earlier native American sources of labor supply for some of these occupations.

Thus, the early New England textile mill owners initially recruited young female operatives from local farm families as in the case of the early Lowell Mills which first opened in 1821. Provision was made for boarding and close supervision of these girls under circumstances vividly depicted in the musical "Carousel." By the mid-1840's, growing unrest among these girl textile workers, resulting from low wages and excessively long working hours, stimulated the beginning of union organization and contributed to a shift in labor supply to more tractable Irish immigrant labor.[6]

This process of displacement of native-born Americans by recent immigrants in "low level" occupations is further described by Commons, who cites an editorial in a New England newspaper in 1847 on this issue:

> "The Harbinger protested against the aristocratic and class feeling that had come into New England with the immigration of Irish and Canadian girls. Formerly the 'sons and daughters of farmers deemed it no disgrace to labor for wages on a neighbor's farm or in his domestic employment'. Now they 'compromise their social standing'... 'Would employers give $12 per month and $1 per week, for their neighbors' sons and daughters, when they could get far more compliant and servile ones for half the money, and with a little instruction equally skillful.'" [7]

The New England farm girls were, moreover, not the only group of "low level" American workers who felt the sharp bite of immigrant competition during this period. By the mid-1800's, sizable colonies of free Negro workers already existed in the larger Northeastern cities, such as New York, Philadelphia and Baltimore, where they were typically engaged in a variety of personal service or unskilled labor occupations. In advocating the need for vocational training for his fellow black man, Frederick Douglass, an outstanding Negro leader and journalist of this period, described the plight of these urban Northern Negroes as follows:

> "The old avocations, by which colored men obtained a livelihood, are rapidly, unceasingly and inevitably passing into other hands; every hour sees the black man elbowed out of employment by some newly arrived emigrant, whose hunger and whose color are thought to give him a better title to the place...
>
> "White men are becoming house-servants, cooks and stewards on vessels -- at hotels. They are becoming porters, stevedores, wood-sawyers, hod-carriers, brick-makers, white-washers and barbers... formerly blacks were almost the exclusive coachmen in wealthy families; this is so no longer; white men are now employed, and for aught we see, they fill their servile station with an obsequiousness as profound as that of the blacks." 8/

From this necessarily sketchy review, the principal sources of low-level manpower supply in the ante-bellum era have been identified. In the agricultural South, such labor continued to be performed predominantly by Negro slaves. In the more industrial North, the limited indigenous labor resources, typically farm youth, were supplemented by a growing supply of recent immigrants, with the Irish providing the largest single ethnic group among non-farm laborers and service workers.

B. The Era of Mass Immigration

Major Occupational Trends

The period between the end of the Civil War and World War I was one of very rapid industrialization, concurrent with continued agricultural expansion in the Prairie and West Coast states. Although agricultural employment continued to grow, reaching a peak of nearly 12 million in 1910 -- about twice its 1860 level -- its proportion of the total labor force declined from more than one-half in 1860 to less than one-third in 1910, reflecting in large part the increased productivity made possible by introduction of harvesters and other farm machinery and of scientific farming methods.

Growth in the non-agricultural sector of the economy was paced by manufacturing, which mushroomed from about 2 million in 1860 to over 11 million in 1910. Employment in construction, trade and service activities experienced similar sharp rates of growth.[9/]

As a result of the researches of Alba Edwards, David Kaplan and other Census satisticians, we have available, beginning with 1900, decennial statistics on the distribution of the labor force by major occupational groups, broadly comparable in classification to those used in the Censuses of Population since 1940. From these data, it is evident that the economy which had emerged by the beginning of the 20th century relied heavily on large masses of unskilled and semi-skilled wage workers. Thus, of the total labor force of more than 37 million in 1910, over one-fourth were hired laborers (farm and non-farm); nearly 15% were in the semi-skilled "operatives" group and an additional 10% were engaged as domestics or in varous service occupations. (Table 5.) Of the nearly 10 million laborers, the largest proportion, about 60%, was still in agricultural work. The 4.5 million non-farm laborers, were in turn concentrated in construction work, in the railroads, in local transport (as draymen, teamsters, stable hands) and in a number of heavy manufacturing industries, such as iron and steel, metal working, lumber and sawmills. Among the operative occupations, the largest number of male operatives were found in 1910 in coal mining, in iron and steel and in allied metal working industries, while female industrial workers were concentrated in the textile industry, in the emerging factory apparel industry, and in other light manufacturing industries. Women, in addition, composed all but a small proportion of the nearly two million domestic servants.[10/]

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Table 5

Percent Distribution of the Labor Force by Major Occupation Group, 1900-1970[a]

Occupation Group	1900	1910	1920	1930	1940	1950	1960	1970
Total (000)	29030	37291	42206	48686	51742	58999	68006	81336
Percent Distribution	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Farm Occupations, Total	37.6	30.8	27.1	21.2	17.4	11.8	6.3	3.6
Farmers and Farm Managers	19.9	16.4	15.4	12.4	10.4	7.4	3.9	2.1
Farm Laborers and Foremen	17.7	14.4	11.7	8.8	7.0	4.4	2.4	1.5
Non Farm Occupations, Total	62.4	69.2	72.9	78.8	82.6	88.2	93.7	96.4
Professional, Technical and Kindred Workers	4.3	4.7	5.4	6.8	7.5	8.6	11.4	14.1
Managers, Officials, Proprietors, Excluding Farm	5.8	6.6	6.6	7.4	7.3	8.7	8.5	10.3
Clerical and Kindred Workers	3.0	5.3	8.0	8.9	9.6	12.3	14.9	17.6
Sales Workers	4.5	4.7	4.9	6.3	6.7	7.0	7.4	6.0
Craftsmen, Foremen and Kindred Workers	10.5	11.8	13.0	12.8	12.0	14.2	14.3	12.8
Operatives and Kindred Workers	12.8	14.5	15.6	15.8	18.3	20.3	20.0	18.3
Private Household Workers	5.4	5.0	3.3	4.1	4.7	2.6	2.8	2.1
Service Workers, Excl. Private Household	3.6	4.6	4.5	5.7	7.1	7.9	8.9	10.5
Laborers, Excl. Farm and Mine	12.5	12.0	11.6	11.0	9.4	6.6	5.5	4.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: 1900-1950: David L. Kaplan and M. Claire Casey, Occupational Trends in the United States: 1900 to 1950. Census Working Paper #5, (GPO, 1958), Table 2.

1960: U.S. Bureau of the Census, U.S. Census of Population, Occupational Characteristics, PC(2)7A, (GPO, 1963), Table 1.

1970: Current Population Survey, March 1970, Table 24, "Employed and Unemployed Persons by Detailed Occupation Group and Sex," (Unpublished table, B.L.S.)

[a] Data for 1900-1940 refer to gainful workers, ages 10 and over. For 1940-1960, data are for the experienced civilian labor force, ages 14 and over. For 1970, data are for the experienced civilian labor force, ages 16 and over.

The New Immigration

The rapid rate of growth of the United States labor force in the era between the end of the Civil War and the outbreak of World War I, and our emergence as a major industrial power, were made possible in large part by an unprecedented wave of immigration to our borders, supplementing a high rate of natural population increase. The annual inflow of immigrants, which had slowed down during the Civil War and the reconstruction period, rose to an average of over 500,000 per year during the decade of the 1880's, dropped temporarily during the 1893-98 depression, and then mounted to record levels averaging more than one million immigrants per year between 1905 and 1914.[11/]

During this period, the immigrant flow also changed dramatically in its ethnic composition. Until the decade of the 1890's, a large proportion of the immigrants continued to be drawn from the countries of Northern and Western Europe. In 1900, this region was still the "homeland" for about 70% of the foreign born white population of the United States. However, beginning with the decade of the 1890's, the major portion of the new immigrants came from Southern and Eastern Europe including heavy concentrations of Slavs, Poles, Italians and Russian or Polish Jews. Thus, in the decade of peak immigration, 1900-1910, these newer nationality groups comprised 70% of the total number of immigrants, as contrasted to only 18% in the decade of the 1880's.[12/]

Despite obvious differences among themselves in ethnic and cultural backgrounds, most of these more recent immigrants shared common handicaps of limited literacy, both in English and, often, in their native tongues, a lack of relevant vocational skills, and significant religious and cultural barriers between themselves and the predominant Northern and Western European stocks who had preceded them. Moreover, with the closing of the frontier, they entered in a period when employment opportunities were largely concentrated in the growing urban, industrial centers and in mining rather than in agriculture. Since the more desirable of the jobs in these industries had been pre-empted by the native populations, these newcomers, like their more disadvantaged predecessors were relegated, disproportionately, to the less desirable unskilled and semi-skilled laborer jobs.

Racial and Ethnic Composition of the Labor Force

Throughout this period of mass immigration, the black worker, although now a "freedman," maintained his unenviable status at the bottom of the occupational ladder. In 1910, Negro workers, 10 years and over, totalled more than 5 million, or nearly 14% of the U.S. labor force. About 90% of the Negro workers were still in the South and nearly three-fourths were confined to the two traditional black occupations of farming and menial service activities. In Southern agriculture, their economic status as either sharecroppers or hired laborers was scarcely improved over that of the slave era. In Southern as well as Northern industry, they were predominantly employed in service-type or laborer jobs. In fact, to the extent that some Southern black workers -- slaves and freedmen -- had previously been given an opportunity to enter certain skilled crafts or industrial trades, increased competition from the nearly-equally impoverished Southern "poor white" population had forced them out of the more desirable of the latter occupations.

There were, however, some limited exceptions to this pattern, both in the South and the North. In the South, the pattern of segregation of the races had generated a requirement for a small Negro professional and middle class to provide the teachers, doctors and ministers to service the Negro population. Also, certain of the least desirable crafts, such as the masonry trades, were identified as "black" trades and predominantly staffed by Negroes. In the North, where the small Negro population was clustered in some of the larger East Coast and Mid-Western cities, competition from the incoming white immigrant groups, both "old" and "new", had effectively excluded all but a few Negroes from mainstream economic activities, reinforced in many cases by systematic exclusionary practices of the craft unions. Some small proportion of Negroes did, however, achieve a toehold in middle or upper level occupations. For example, a survey conducted in Philadelphia in 1913 identified a total of 1,028 Negro businesses in that city -- mainly small marginal retail or service extablishments catering to the Negro population.[13] Negroes were also employed in modest numbers in some of the less desirable operative or craft jobs, typically those falling into the "hot" or "heavy" category, and provided a convenient source of strikebreakers in industries such as steel and coal during some of the turbulent strikes of that period.

The extent to which each of two major "disadvantaged" social classes of the pre-World War I era -- the immigrants and black Americans -- contributed to the labor supply in each major occupational group, as compared to native white workers, is indicated by the summary statistics for 1910 appearing in Table 6. This table, as well as succeeding tables in this chapter, provide historical comparisons of the broad racial and nativity composition of the United States labor force, by occupation, based on occupational groupings comparable to those currently followed in the Census statistics. The statistics compiled here are for 1910 -- when the tide of European immigration was at its peak -- and for 1950, based on a special Census tabulation of the

Table 6

Percent Distribution of Labor Force in Each Major Occupational Group by Race and Nativity: 1910, 1950

Major Occupation Group	1910				1950			
	No. (000)	Percent			No. (000)	Percent		
		Native White	Foreign Born White	Non-White		Native White	Foreign Born White	Non-White
TOTAL	37291	65.5	20.9	13.6	58999	81.4	8.2	10.4
Farm Occupations, Total	11533	68.5	8.5	23.0	6953	79.3	4.5	16.2
Farmers and Farm Managers	6163	74.2	11.0	14.8	4375	83.6	4.0	12.4
Farm Laborers and Foremen	5370	61.9	5.7	32.4	2578	71.9	5.5	22.6
Non Farm Occupations, Total	25758	64.2	26.4	9.4	52046	81.7	8.8	9.5
Professional, Technical and Kindred Workers	1758	82.7	13.1	4.2	5081	89.9	6.2	3.9
Managers, Officials, Proprietors	2462	71.7	26.0	2.3	5155	85.5	12.2	2.3
Clerical and Kindred Workers	1987	87.9	10.8	1.3	7232	93.0	4.0	3.0
Sales Workers	1755	84.9	14.1	1.0	4133	91.5	6.6	1.9
Craftsmen, Foremen, and Kindred Workers	4315	68.6	28.7	2.7	8350	85.2	10.8	4.0
Operatives and Kindred Workers	5441	63.2	31.6	5.2	12030	80.7	9.5	9.8
Service and Kindred Workers-	3562	44.7	23.9	31.4	6180	59.5	10.7	29.8
Private Household Workers	1851	41.9	22.4	35.7	1538	34.1	7.8	58.1
Policemen, Firemen, etc.	113	81.8	16.9	1.3	335	94.0	4.1	1.9
Other Service Workers	1598	45.2	26.2	28.6	4307	65.9	12.2	21.9
Laborers Excl. Farm and Mine	4478	45.7	37.1	17.2	3885	64.6	9.6	25.8
Male	29847	66.9	21.9	11.2	42554	81.6	8.9	9.5
Farm Occupations, Total	10358	72.9	9.4	17.7	6352	80.8	4.6	14.6
Farmers and Farm Managers	5883	74.8	11.1	14.1	4255	84.2	3.9	11.9
Farm Laborers and Foremen	4475	70.7	7.0	22.3	2097	74.0	5.9	20.1
Non Farm Occupations, Total	19488	65.7	27.0	7.3	36202	81.8	9.7	8.5
Professional, Technical and Kindred Workers	1032	80.7	15.1	4.2	3074	89.9	7.3	2.8
Managers, Officials, Proprietors, Excl. Farm	2312	72.0	25.9	2.1	4456	85.4	12.6	2.0
Clerical and Kindred Workers	1300	85.5	12.9	1.6	2729	90.1	5.3	4.6

Table 6

(continued)

Percent Distribution of Labor Force in Each Major Occupational Group by Race and Nativity: 1910, 1950

Major Occupation Group	1910				1950			
	No. (000)	Percent			No. (000)	Percent		
		Native White	Foreign Born White	Non-white		Native White	Foreign Born White	Non-white
(Male, continued)								
(Non Farm Occupations, continued)								
Sales Workers	1376	84.0	15.0	1.0	2715	91.2	6.9	1.9
Craftsmen, Foremen, and Kindred Workers	4208	68.5	28.8	2.7	8098	85.2	10.8	4.0
Operatives and Kindred Workers	3739	59.3	35.2	5.5	8743	81.2	9.1	9.7
Service and Kindred Workers	1149	48.1	27.5	24.4	2647	63.3	14.5	22.2
Private Household Workers	67	32.4	22.8	44.8	80	33.4	11.8	54.8
Policemen, Firemen, etc.	113	81.8	16.9	1.3	329	94.0	4.1	1.9
Other Service Workers	969	45.3	29.1	25.6	2238	59.9	16.1	24.0
Laborers, Excl. Farm and Mine	4372	45.4	37.4	17.2	3740	64.4	9.7	25.9
Female	7444	59.7	15.1	25.2	16445	80.8	6.5	12.7
Farm Occupations, Total	1174	40.5	3.9	55.6	601	63.6	4.1	32.3
Farmers and Farm Managers	279	60.2	10.5	29.3	120	65.8	5.6	28.6
Farm Laborers and Foremen	895	34.4	1.9	63.7	481	63.0	3.7	33.3
Non Farm Occupations, Total	6270	66.7	17.8	15.5	15844	81.4	6.7	11.9
Professional, Technical, and Kindred Workers	726	84.8	10.9	4.3	2007	90.0	4.5	5.5
Managers, Officials, Proprietors, Excl. Farm	150	67.4	27.3	5.3	700	86.3	9.6	4.1
Clerical and Kindred Workers	688	92.9	6.5	0.6	4502	94.7	3.2	2.1
Sales Workers	379	88.4	10.8	0.8	1418	91.9	6.0	2.1
Craftsmen, Foremen, and Kindred Workers	106	73.6	25.4	1.0	253	84.9	9.5	5.6
Operatives and Kindred Workers	1702	72.7	23.0	4.3	3287	79.4	10.8	9.8
Service and Kindred Workers	2413	43.1	22.2	34.7	3532	56.7	7.9	35.4
Private Household Workers	1784	42.6	22.4	35.0	1459	34.1	7.6	58.3
Policemen, Firemen, etc.	--	--	--	--	5	91.9	3.8	4.3
Other Service Workers	630	44.5	21.4	34.1	2068	72.6	8.1	19.3
Laborers, Excl. Farm and Mine	106	61.2	23.2	15.6	145	67.7	8.1	24.2

-b-

Table II.3.0
(continued)

Footnotes

Sources: Nonwhite data adapted from Alba M. Edwards, Comparative Occupation Statistics for the United States: 1870-1940, (GPO, 1943), Tables 14 and 15 and U.S. Bureau of the Census, 1950 Census of Population, PC(2)7A Occupational Characteristics, Table 3, (GPO, 1953); Foreign born data for 1910 adapted from Edwards, op. cit. and, for 1950 from Edward P. Hutchison, Immigrants and Their Children (Wiley, 1956). Occupational totals from David L. Kaplan and M. Claire Casey, Occupational Trends in the United States, Census Working Paper #5, (GPO, 1958).

Note: Male and female subtotals may not add to the totals for "Both Sexes" due to rounding.

foreign-born for that year. (Comparable statistics for non-whites have also been compiled for 1960; however, detailed occupational statistics for the foreign born were not published in the 1960 Census.)

From these summary statistics, it is evident that the proportion of native white workers in each occupational group as of 1910 was closely correlated with that occupational group's social and economic ranking. Native born white workers comprised nearly two-thirds (65.5%) of the total gainfully occupied population in 1910. However, they comprised more than 80% of the professional, clerical and sales occupations, and of the policemen and firemen; they accounted for more than 70% of the managerial and proprietor groups (farm and non-farm) and 68.6%, of the skilled craftsmen group. Conversely, the foreign born and non-white workers, combined, provided a greater-than-proportionate share of the manpower in each of the lower-level occupational groups. Although they accounted for less than 35% of the total 1910 labor force, they represented a majority of the workers in three occupational groups: private household workers (58%); other service workers (55%) and non-farm laborers (54%). They also accounted for a somewhat greater than average share of the labor force in the two other lower-level occupational groups: i.e., operatives and farm laborers. (These relationships have been expressed in the form of relative concentration indices in Table 7.)

Although the immigrants, as a group, shared certain common handicaps with the native black population, these handicaps differed in degree and were reflected in marked contrasts in their respective occupational distributions. The foreign born white population contributed only a small proportion (8.5%) of the farm labor force. The Negroes, on the other hand, had continued to be

Table 7

Relative Concentration Indices for Native White, Foreign Born Whites and Non-White Workers by Major Occupation Group: 1910, 1950 a/

Major Occupation Group	1910				1950			
	No. (000)	Percent			No. (000)	Percent		
		Native White	Foreign Born White	Non-White		Native White	Foreign Born White	Non-White
TOTAL	37291	100	100	100	58999	100	100	100
FARM OCCUPATIONS, TOTAL	11533	105	41	169	6953	97	55	156
Farmers and Farm Managers	6163	113	53	109	4375	103	49	119
Farm Laborers and Foremen	5370	94	27	238	2578	88	67	217
NON-FARM OCCUPATIONS, TOTAL	25758	98	126	69	52046	100	107	91
Professional, Technical and Kindred Workers	1758	126	63	31	5081	110	76	37
Managers, Officials, Proprietors	2462	109	124	17	5155	105	149	22
Clerical and Kindred Workers	1987	134	52	10	7232	114	49	28
Sales Workers	1755	130	67	7	4133	112	80	18
Craftsmen, Foremen and Kindred Workers	4315	105	137	20	8350	105	132	38
Operatives and Kindred Workers	5441	96	151	38	12030	99	116	94
Service and Kindred Workers:	3562	68	114	231	6180	73	130	298
Private Household Workers	1851	64	107	262	1538	42	95	559
Policemen, Firemen, etc.	113	125	81	10	335	115	50	18
Other Service Workers	1598	69	125	210	4307	81	149	211
Laborers, Exlcuding Farm and Mine	4478	70	177	126	3885	79	117	248

a/ The relative concentration index for a particular population group is the ratio of the percentage of workers in a specific occupational group to the corresponding percentage for the population group in the labor force as a whole.

heavily concentrated in Southern agriculture, where they were locked in by the limited employment opportunities available to them elsewhere, as well as by the sharecropper system, which had imposed a condition of financial "servitude" upon them.

In the non-farm sector, both the foreign born and the black workers were underrepresented in white collar occupations, such as professional, clerical and sales jobs, as a result of their limited educational and communication skills, and because of discrimination in favor of the established native white population. At the bottom of the occupational hierarchy, both foreign born and Negro men were heavily represented among unskilled laborers, among domestic servants and in other personal service occupations. However, whereas foreign born workers contributed a relatively large proportion of the labor supply for the operatives and craftsmen occupational groups and in certain lines of small business -- and in fact dominated certain of these industries or trades -- relatively few of the Negroes had gained entry to such occupations as of 1910, except where they entailed particularly onerous working conditions.

The extent to which the Negro worker was differentially concentrated in the lowest rungs of the occupational status ladder is more clearly indicated in a more detailed occupational distribution of non-white workers as of 1910, grouped in accordance with our five broad occupational status groups. The occupations included in each of these groups correspond -- except as noted below -- with the occupational status rankings shown in Table 3. The major departure from this grouping was our assignment of Negro farmers to Group IV, rather than the Group III category, in view of the fact that the Negro "farmer", as of 1910, was characteristically a sharecropper whose subordination to his white landlord was so complete as to place him, precariously, only one step higher on the status ladder than the hired farm laborer. By the same token, Negro farm family workers (who had been combined with farmers in our original status groupings as of 1960 because of their low frequency) have been included with paid farm laborers in Group V, for our historical comparisons. Other smaller departures in status grouping were necessitated by changes in Census occupational classification over the years, which prevented a precise matching of occupations by status category, with those based on our analyses of the 1960-70 Census data. For example, since it was not possible to distinguish between the lowest level of clerical occupations, such as shipping clerks (included in Group IV) and the remaining clerical jobs, all clerical workers were included in Group II. The latter adjustments have had only a minor impact upon the overall comparability of these data for broad trend analysis.

The degree of concentration of the 1910 non-white labor force in the lowest status occupational categories is evidenced by the data in Tables 8 and 9. Over two-thirds of all Negro workers were in Group V occupations and 93% were in the Group IV and Group V classes combined. The Negro woman was even more constrained in her occupational range than the Negro man: over 85% of non-white women in 1910 were in Group V occupations, mainly domestic service and other personal service jobs and in farm labor.

Another useful measure of the degree of inequality of occupational distribution of blacks in the 1910 labor force is the index of relative concentration by occupation, which is a ratio of the percent of non-whites in a specific occupation to the percent of non-whites in all occupations. If non-whites were proportionately represented in all occupations, this index would have a value of 100 in each occupation. Thus, deviations from 100 indicate the degree of under -- or over -- representation in a particular occupation. These indices

Table 8

Percentage Distribution of Non-White Workers by Occupational Status Groups and Subgroups: 1910, 1950, 1960

Occupation Group	Both Sexes			Male			Female		
	1910	1950	1960	1910	1950	1960	1910	1950	1960
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
GROUP I - Professional, Technical, Kindred Workers, Total	1.5	3.2	5.5	1.3	2.2	4.0	1.6	5.2	7.7
Engineers	---	---	0.2	---	0.1	0.3	---	---	---
Medical Personnel	0.6	0.5	1.1	0.2	0.3	0.6	1.3	1.0	1.8
Teachers, Excluding College	0.2	1.5	2.2	0.2	0.5	0.9	0.1	3.3	4.1
All Other	0.7	1.2	2.0	0.9	1.3	2.2	0.2	0.9	1.8
GROUP II	1.8	6.9	10.8	2.5	6.9	9.9	0.9	7.3	12.4
Managers, Officials, Proprietors, Excluding Farm	1.1	1.9	1.9	1.5	2.3	2.4	0.5	1.4	1.2
Clerical and Kindred Workers, Total	0.5	3.6	6.9	0.6	3.1	5.4	0.2	4.5	9.2
Secretary, Stenographers, Typists	0.1	0.5	1.2	---	0.1	0.1	0.1	1.4	2.7
All Other Clerical Workers	0.4	3.1	5.7	0.6	3.0	5.3	0.1	3.1	6.5
Sales Workers	0.2	1.3	1.8	0.4	1.3	1.7	0.2	1.4	2.0
Policemen, Firemen, etc. 1/	---	0.1	0.2	--	0.2	0.4	---	---	---
GROUP III	3.7	11.1	13.0	5.2	11.1	14.7	1.5	10.3	10.7
Craftsmen, Foremen, and Kindred Workers:									
Foremen, n.e.c.	0.1	0.2	0.4	0.1	0.3	0.5	---	0.1	0.1
Mechanics and Metal Craftsmen	0.4	1.9	2.8	0.6	3.0	4.5	---	0.1	0.1
Carpenters	0.6	0.7	0.8	1.0	1.1	1.2	---	---	---
Brickmasons, Electricians, etc. 2/	0.3	0.8	0.9	0.5	1.1	1.5	---	---	---
Craftsmen, n.e.c.	0.5	1.1	1.6	0.8	1.4	2.6	0.1	0.4	0.5
Barbers, Bartenders, Misc. Services 3/	1.6	5.4	5.4	1.9	3.0	3.0	1.3	9.0	9.2
Operatives, Printing, Petroleum, and Related	0.2	1.0	1.1	0.3	1.2	1.4	0.1	0.7	0.8

Table 8
(continued)
Percentage Distribution of Non-White Workers by Occupational Status Groups and Subgroups: 1910, 1950, 1960

Occupation Group	Both Sexes			Male			Female		
	1910	1950	1960	1910	1950	1960	1910	1950	1960
GROUP IV	25.6	29.2	27.2	32.6	36.8	33.1	10.5	15.5	17.9
Farmers and Farm Managers, Total	18.0	8.8	3.0	25.6	12.6	4.5	4.6	1.6	0.7
Construction Painters, Plasterers, Roofers, etc.	0.3	0.8	0.5	0.4	1.1	0.8	---	---	---
Transport Operatives	0.9	4.1	5.2	1.1	6.7	8.7	---	0.2	0.1
Operatives, Durable Goods Mfg.:									
Metal Working Industries	0.2	2.6	4.0	0.2	3.4	5.2	---	1.5	2.0
All Other Durables	0.3	1.1	1.0	0.4	1.6	1.3	0.1	0.4	0.4
Operatives, Non-Durable Goods Mfg.:									
Food and Tobacco	0.4	1.6	1.9	0.4	1.6	1.9	0.6	1.8	1.8
Textile, Apparel, Leather	0.3	1.7	1.9	0.2	0.8	0.8	0.4	3.8	3.5
Operatives, Non-Manufacturing:									
Mining, n.e.c.	1.0	0.7	0.3	1.3	1.2	0.4	---	---	---
All Other Non-manufacturing Including Not Specified Ops.	0.9	3.3	3.6	0.5	3.3	4.8	2.5	1.8	1.8
Service Occupations:									
Guards, Watchmen, etc. 4/	0.1	0.2	0.3	0.1	0.3	0.4	---	---	0.1
Waiters, Waitresses	0.9	1.5	1.6	1.3	1.1	1.0	0.6	2.3	2.6
(Hospital Attendants, Practical Nurses, Midwives	1.6	1.0	2.5	---	0.5	1.0	1.7	1.9	4.8
Laborers, Metal Working Industries	0.7	1.8	1.4	1.1	2.6	2.3	---	0.2	0.1
GROUP V	67.4	49.6	43.5	58.4	43.0	38.3	85.5	61.7	51.3
Farm Laborers and Foremen, Total	33.9	9.5	6.0	30.7	10.5	7.6	35.4	7.7	3.5
Paid Workers	17.4	6.1	5.4	18.0	7.3	7.1	15.8	3.9	2.9
Unpaid Workers	16.5	3.4	0.6	12.7	3.2	0.5	19.6	3.8	0.6

Table 8
(continued)

Percentage Distribution of Non-White Workers by Occupational Status Groups and Subgroups: 1910, 1950, 1960

Occupation Group	Both Sexes			Male			Female		
	1910	1950	1960	1910	1950	1960	1910	1950	1960
GROUP V, continued									
Laborers, Excl. Farm and Mine:									
Durables, Excluding Metals	2.8	1.3	0.8	3.8	2.0	1.4	0.1	0.2	0.1
Non-Durable Goods Industries:									
Food and Tobacco Manufacturing	0.5	0.6	0.6	0.6	0.9	0.9	0.2	0.2	0.2
Textile, Apparel, Leather Mfg.	0.3	0.2	0.2	0.5	0.4	0.3	0.1	0.2	---
Other Non-Durable Manfuacturing	0.5	0.8	0.6	0.7	1.1	1.0	---	0.2	---
Non-Manufacturing:									
Construction	1.0	3.4	3.3	3.1	5.0	5.3	---	0.2	0.1
All Other Non-Manufacturing (including not specified)	9.9	8.4	6.9	13.5	12.1	10.9	0.5	0.5	0.7
Personal Services:									
Cooks	1.8	2.1	2.3	1.3	1.5	1.5	3.1	3.2	3.4
Janitors and Sextons	0.5	2.4	2.7	0.7	3.3	3.9	0.1	0.7	0.7
Other Cleaning and Building Services 5/	2.1	3.3	2.9	2.1	3.7	3.6	2.1	1.8	1.9
Private Household Workers	13.6	15.0	14.8	1.0	1.1	0.8	43.1	41.5	36.4
Laundry and Dry Cleaning Operatives	0.5	2.6	2.4	0.4	1.4	1.1	0.8	5.3	4.3

Sources: See Table II-3 and text.

1/ Includes policemen; firemen, marshals and constables; sheriffs and bailiffs.

2/ Includes brickmasons; electricians; plumbers; excavating, grading and machinery operations; and structural metal craftsmen.

3/ Includes barbers; bartenders; boarding and lodging housekeepers; misc. personal attendants, ushers, recreation and amusement.

4/ Includes guards and watchmen, crossing watchmen and bridge tenders.

5/ Includes porters, elevator operators, cleaners and charwomen.

Table 9

Relative Concentration 1/ of Non-Whites in Each Occupation: 1910, 1950, 1960

Occupation Status Group	Both Sexes		
	1910	1950	1960
TOTAL, EXPERIENCED CIVILIAN LABOR FORCE	100	100	100
GROUP I - Professional, Technical, Kindred Workers, Total	30	38	48
Engineers	4	6	14
Medical Personnel	17	29	56
Teachers, Excluding College	35	74	84
All Other	32	31	37
GROUP II	11	24	35
Managers, Officials, Proprietors,* Excluding Farm	16	22	23
Clerical and Kindred Workers, Total	9	29	47
Secretaries, Stenos., Typists	3	18	32
All Other Clerical Workers	10	33	51
Sales Workers	7	18	24
Policemen, Firemen, etc. 2/	9	18	35
GROUP III	25	64	73
Craftsmen, Foremen, and Kindred Workers:			
Foremen, n.e.c.	9	14	20
Mechanics and Metal Craftsmen	13	38	56
Carpenters	27	41	53
Brickmasons, Electricians, etc. 3/	20	40	52
Craftsmen, n.e.c.	17	36	44
Barbers, Bartenders, Misc. Services 4/	63	109	98
Operatives, Printing, Petroleum and Related Industries	37	94	108
GROUP IV	70	98	105
Farmers and Farm Managers, Total	104	119	76
Construction Painters, Plasterers, Roofers, etc.	31	79	173
Transport Operatives	62	103	115
Operatives, Durable Goods Mfg.:			
Metal Working Industries	14	63	80
All Other Durables	45	126	118
Operatives, Non Durable Goods Mfg.:			
Food and Tobacco	56	111	132
Textile, Apparel, Leather	9	48	65

Table 9

(continued)

Relative Concentration[1] of Non-Whites in Each Occupation: 1910, 1950, 1960

Occupation Status Group	Both Sexes		
	1910	1950	1960
GROUP IV (continued)			
Operatives, Nonmanufacturing:			
Mining, n.e.c.	49	66	49
All Other Nonmanufacturing, Including Not Specified Operatives	38	115	135
Service Occupations:			
Guards, Watchmen, etc. 5/	32	44	60
Waiters, Waitresses	172	107	100
Hospital Attendants, Practical Nurses, Midwives	109	154	240
Laborers, Metal Working Industries	43	218	224
GROUP V	194	308	331
Farm Laborers and Foremen, Total	228	217	249
Paid Workers	210	220	275
Unpaid Workers	245	213	131
Laborers, Excluding Farm and Mine:			
Durables, Excluding Metals	184	288	251
Non Durable Goods Industries:			
Food and Tobacco Mfg.	129	216	250
Textile, Apparel, Leather Mfg.	44	129	186
Other Non Durables Mfg.	108	254	264
Non Manufacturing:			
Construction	136	249	278
All Other Non Mfg. (including not specified)	127	249	254
Personal Services:			
Cooks	394	257	245
Janitors and Sextons	158	288	283
Other Cleaning and Building Services 6/	318	458	441
Private Household Workers	251	559	527
Laundry and Dry Cleaning Ops.	170	337	419

1/ The relative concentration index is the ratio of the percent of nonwhites in a specified occupation to the percent of non-whites in all occupations.

2/ Includes policemen; firemen; marshalls and constables; sheriffs and bailiffs.

3/ Includes brickmasons; electricians; plumbers; excavating, grading and machinery operators, and structural metal craftsmen.

4/ Includes barbers; bartenders; boarding and lodging housekeepers; misc. personal attendants, ushers, recreation and amusement.

5/ Includes guards and watchmen, crossing watchmen and bridge tenders.

6/ Includes porters, elevator operators, cleaners and charwomen.

(Table 9) demonstrate the very limited penetration of black workers into the whole range of middle and upper level occupations as well as into the more desirable of the Group IV occupations, such as manufacturing operatives. Conversely, non-whites were heavily overrepresented in nearly all of the Group V occupations -- most heavily in the "menial" personal services occupations such as domestics, cooks, charwomen, cleaners and porters.

C. World War I to 1960

Industrial and Occupational Trends

The half century which elapsed between the beginning of World War I and 1960 witnessed profound transformations in the Nation's economy and in the occupational distribution of its labor force. The most dramatic of these changes were: (1) the sharp decline in labor requirements for agriculture, (2) the rapid growth of service-producing activities and of white collar occupations, (3) major shifts in occupational composition within the industrial work force, and (4) the continued movement of many functions previously performed within the household to the non-household market economy.

Although these trends resulted from a complex of economic and technological changes, an overrriding influence was the vastly increased reliance on mechanical power for production of goods and services. Between 1910 and 1960, the total horsepower of all prime movers had multiplied 80-fold, from 139,000 to 11,008,000. Dominating the trend was the substitution of the internal combustion engine in automobiles, trucks and airplanes, for earlier modes of land transportation, such as the steam railroad and horse-drawn vehicles. In 1910, the latter transportation methods were still predominant. By 1960, automotive vehicles (cars, trucks, and buses) had become the dominant means of land transportation; animals had become a negligible source of motive power for transportation while railroads had declined drastically in relative importance. Concurrently the mechanical power utilized in factories, farms, mines and in households had also increased many-fold.[14]

The labor force effects of the new mechanical revolution were most dramatically visible in the two sectors which, as of 1910, were still the most technologically retarded, i.e., agriculture and the household economy. In agriculture, which had been a major user of unskilled manual labor in 1910, the progressive mechanization of additional farm crops and farm processes and the increased application of scientific methods of farming, combined with the curtailment of export markets, released millions of former farmers and farm laborers for employment in higher-paying non-agricultural pursuits. The result was a sharp decline in the proportion of the labor force engaged in farm occupations, from 31% in 1910 to 6% in 1960.

In the household economy, the proliferation of labor-saving household appliances and the increased reliance upon market sources for ready-made food preparation and for laundry and related personal services were most directly reflected in a reduction by nearly one-half in the percentage of workers in private household occupations, from 5.0% in 1910 to 2.8% in 1960, and in the growth of many of the personal service occupations performed outside of the home. Of even greater significance, these developments -- combined with the long-term trend towards reduction in family size -- had made it possible for many millions of women to enter gainful employment. In the early 1900's, only about 20% of women, 14 years and over, were in the labor force; by 1960, this proportion had risen to nearly 35%.[15]

Within the non-farm sector, the emergence of new mass-production industries, such as automobiles, rubber, electrical and electronics equipment, and the continued mechanization of older industries resulted in a major shift in the occupational structure of the industrial work force. Many jobs previously performed by unskilled laborers were eliminated or converted to machine-tending or machine-operating functions, thus making possible a sharp reduction in the proportion of non-farm laborers in the work force, from 12% in 1910 to 5.5% in 1960. Requirements for many of the traditional crafts were also greatly reduced, as their work was subdivided into more specialized, repetitive duties, or replaced entirely -- as in the case of glassblowers -- by highly automated equipment. In their place, there emerged an expanded work force of operatives and of mechanics and repairmen. Thus, in 1960 the "operatives" constituted the largest single occupational group, accounting for 20% of the civilian labor force, as compared to 14.5% in 1910. The "craftsmen" occupational group also experienced net growth of 2% in its share of the labor force between 1910 and 1960 as rapid growth of the mechanic and repairmen occupations, as well as in occupations associated with the construction industry, offset declines in other skilled crafts.

A concomitant of these developments was a sharp increase, too, in requirements for all categories of "white collar" occupations. These included many new professional, technical, managerial and clerical specialties needed to develop and apply the results of modern science and technology, and to service the record-keeping, communications and control needs of increasingly complex organizations in both the private and the expanding public sectors. The most rapid expansion in the white collar groups was among the professional, technical, and clerical occupations, with smaller increases in the proportion of non-farm managers, officials and proprietors and of sales personnel. However, whereas the "managerial" group in 1910 had consisted in large part of proprietors of small retail shops and similar establishments, by 1960, two-thirds of the total consisted of salaried managers and officials in business and government.

The net effect of these changes was a pronounced upgrading in the occupational distribution of the labor force. Thus, based on the summary data for the major Census occupational groups, the combined proportion of workers in the laborer category (farm and non-farm) and in private household occupations, declined from about 26% in 1910 to less than 8% in 1960. Even if we further combine the latter occupations with the expanding operatives and service worker occupational groups, the net decline in this broader category (roughly corresponding to our Group IV and V status groups) was still very substantial, i.e., from 51% in 1910 to 39% in 1960.

These trends developed unevenly over this 50 year period, punctuated -- as it was -- by three major wars and by alternating periods of prosperity and depression. For example, during the depression decade of the 1930's, the decline in the proportion of hired farm laborers slowed down appreciably, while the proportion of domestics actually increased. In the decade of the 1940's the World War II mobilization and the continued high levels of economic activity in the immediate post-war period were reflected in particularly sharp reductions in the proportion of workers in the laborer and domestic service occupational groups.

It should be noted, too, that the standard Census occupational statistics, which we have cited, refer to the "civilian" labor force and, therefore, exclude one labor force component which grew significantly over this era, notably, the Armed Forces. Until the World War II period our peacetime military establishment -- staffed entirely by volunteers -- had been comparatively modest in size, although it grew gradually from a level of 139,000 in 1910 to 334,000 in 1939. Following World War II, the Nation's assumption of increased responsibilities for security of the non-Communist world, combined with the onset of the Cold War, required the maintenance of a much larger military establishment staffed by a combination of draftees and volunteers. Thus, after the immediate post-World War II demobilization in 1948, our active-duty military strength of about 1.4 million was still fully four times as great as in 1939. It rose, moreover, to a Korean War peak of 3,550,000 in 1953. Even after substantial cutbacks in the following years, it still stood at 2,476,000 in 1960, or 3.5% of the total labor force.[16]

The evolution of the occupational structure of the Military Services in the period since World War I has, in broad outline, closely paralleled that of the civilian economy. Thus, at the peak of the World War I mobilization in 1918, about 63% of all military personnel were assigned to relatively low-skilled ground combat duties, to service or laborer activities or to other unskilled activities. An additional 20% were working as mechanics or in other craft occupations, while only 17% were in "white collar" activities, including officers, enlisted technicians and clerks. By 1960, the proportion in the lower-level enlisted occupations had declined sharply to 16%; the percentage in mechanical and crafts occupations had risen to 37%, while the "white collar" military occupational specialities now accounted for 47% of total military personnel.[17]

Immigration Trends

The transformations in occupational structures described above were accompanied by equally dramatic shifts in sources of labor supply. Until the 1920's, our national policy had been one of virtually unrestricted immigration. Although this policy, in part, reflected our long-standing tradition of providing asylum to the oppressed and underprivileged, it had been maintained -- in spite of mounting opposition from organized labor -- because it accorded with the perceived manpower needs of the nation, during an era of burgeoning expansion. Demands for some forms of control over the number and types of immigrants had flared at various times in the 19th century, notably in the 1840's, when the "Know Nothing Movement" was organized in part as a reaction to the large influx of Irish immigrants. The demands grew in intensity, beginning in the 1880's, when organized labor became increasingly concerned about wage competition from the "new" immigrant groups, particularly their utilization by employers as strikebreakers. However, with the notable exception of legislation barring importation of Chinese coolies and a "Gentlemen's Agreement" in 1907, barring Japanese immigration, no substantial legal constraint upon the inflow of immigrants was enacted until after World War I -- although a series of laws beginning in the 1880's did provide for screening out of certain undesirable categories.[18] A dominant consideration during the early 1900's was the continuing need of industry for a large supply of unskilled manual workers: "Employers, during the period of industrial development after 1898 wanted labor -- abundant labor, cheap labor, strong backed labor, in large measure common labor, and always docile labor."[19]

With the outbreak of World War I in Europe, the mass entry of immigrants was, however, suspended. The number of alien immigrants admitted, which had averaged 1.2 million per year in the two preceding years, fell to an average of 300,000 per year in 1914-17 and to only about 100,000 per year in 1918 and 1919. Immediately after the end of the War, the flow of immigrants was temporarily resumed, reflecting the effect of extreme dislocations and war-induced hardships in Europe, and the efforts of many immigrants to rejoin members of their family who had immigrated here shortly before the War. However, the era of mass immigration was effectively terminated by legislation, enacted in 1921, which established an immigration quota system, whose effect was with certain exceptions to limit the overall number of immigrants of any nationality admitted each year, based on the percentage of foreign born persons of that national origin residing in the United States as of a base Census year. The initial legislation, enacted in 1921, established a quota of 3%, based on the percentage of foreign born from each national group as shown in the 1910 Census. A revised law, enacted in 1924, reduced the quota to 2% and substituted the 1890 Census as the base year, thus systematically curtailing the inflows of ethnic groups from the more recent immigrant sources of Southern and Eastern Europe. Asiatics were generally precluded from immigration as under previous practice. However no quotas were established for residents of the Western hemisphere.[20]

This fundamental reversal of American immigration policy was due to a combination of influences, including intensified opposition by organized labor to a resumption of large-scale immigration, widespread ethnic and religious prejudices against the newer immigrant groups and near-hysteria concerning the dangers of imported "Bolshevism" or "anarchism."[21] Of possibly equal importance was the fact that, as a result of its experience in recruitment of labor for the World War I industrial mobilization from internal, rather than external sources (discussed below) and of the progressive displacement of unskilled labor by mechanization, American industry no longer found the unskilled immigrant essential for its post-World War I manpower needs.[22]

The 1924 Act was to continue as the basic statutory framework of United States immigration policy for a period of more than four decades. It was subject to numerous amendments and modifications in the light of changing exigencies -- notably to permit importation of contract agricultural labor, mainly from Mexico, during and immediately after World War II (the "bracero" program) and to facilitate immigration of war brides and of various displaced persons or refugee groups. In addition, in 1952, special preference within quota limits was provided for individuals with specialized skills or abilities.

The combined effect of these statutory constraints was to sharply curtail the volume of immigration and to significantly change the composition of the more recent immigrant groups. Following enactment of the 1924 law, immigration fell to a rate of about 300,000 per year in 1925-29; it remained well below 100,000 per year during the depression decade of the 1930's and the World War II period, and -- despite special non-quota provisions for war brides and certain refugee groups -- averaged only about 250,000 per year in the decade of the 1950's. (Table 10.) As a result of the national origin quota system and other special provisions, the percentage of immigrants from the favored nationality groups, including those from Northern and Western Europe and from Canada (to whom no quota applied), rose from less than one-fourth of the total in the 1901-1910 decade to 54%, in 1921-30 and 60%, in 1951-60. At the same time, immigration from Mexico, the West Indies and other Latin-American countries, which in common with Canada was not subject to quota limitation during this period, rose from only 2% of the total in 1901-1910, to about one-fourth in the 1951-60 decade.[23] This was supplemented, moreover, by an increased flow of illegal immigrants mainly across the Mexican border -- the so-called wetbacks --

Table 10

Alien Immigration and Net Migration from Farms, by Decade: 1910-1970

(In Thousands)

Period	Immigrants 1/	Net Migration From Farms 2/
1901 - 1910	8,795	N.A.
1911 - 1920	5,736	(5,100)
1921 - 1930	4,107	5,921
1931 - 1940	528	4,557
1941 - 1950	1,035	10,636
1951 - 1960	2,515	9,597
1961 - 1970	3,322	5,940

1/ 1971 Annual Report, Immigration and Naturalization Service, Table 1.

2/ Also includes effects of net reclassification of residence. Estimate for 1911-20 is an approximation based on net change in farm population between 1911 and 1920 and on natural growth rate for farm population, based on 1920-25 experience. Data for subsequent decades from Farm Population Estimates, 1910-70, Rural Development Service, U.S. Department of Agriculture, Statistical Bulletin No. 523, Table 6.

and beginning in the 1940's, with a growing inflow of Puerto Ricans to the mainland, where they mainly settled in the New York City area. Thus, the Puerto Rican born population in New York City, which had totalled only 70,000 in 1940, grew to 187,000 in 1950. In the following decade, the total Puerto Rican population including the children of those born in Puerto Rico, mushroomed to 613,000 in New York City alone, and to a nationwide total of 893,000.[24]

This shift in ethnic composition of immigrants, combined with increased selectivity in admissions and concurrent economic and social trends in the countries of origin, was to greatly alter the occupational composition of the immigrant group. Thus, in 1907, the peak year of the pre-World War I immigrant inflow, one-third of the nearly one million immigrants who reported an occupation upon arrival were classified as farm laborers and nearly three-fourths of the total (74%) were classified as either farm or non-farm laborers, as domestics or as other service workers. By the decade, 1951-60, the proportion of farm laborers had declined to 4%, while those in the broader group of laborer and service occupations had declined to less than one-fourth of the total (23%). In contrast, the percentage reported as professionals or in other white collar occupations had increased from less than 5% of the total in 1907 to 37% in the 1950's.[25]

The extent to which these trends affected the contribution of immigrants to the labor supply of the various occupations is suggested by the summary statistics in Table 6. By 1950, the percentage of foreign born whites in the labor force had been reduced to 8.2% as compared to 20.9% in 1910 -- a consequence of the post-World War I reduction in new immigration and of attrition from the labor force of the large cohorts of immigrants who had entered in earlier decades. Analysis of the proportion of foreign born in each major occupational group indicates that in spite of the higher-level occupational background of more recent immigrants and of the occupational upgrading of many who had arrived in this country early in their working lives, the foreign born continued to be underrepresented in most of the preferred white collar occupations, i.e., professional and technical, clerical and sales, and continued to be overrepresented in most of the lower-level occupational groups. There were, however, significant shifts in relative concentration of the foreign born workers by occupational group, as indicated in Table 7. Among the higher-level occupations, foreign born workers increased their relative proportions, as compared to 1910, in the non-farm managerial and proprietor group, in professional and technical occupations and in sales jobs. Among the lower-level occupational groups, the most significant shifts were sharp declines in the relative proportions of foreign born in the non-farm laborers and operative groups and in private household occupations, and a relative increase in the farm laborer groups -- the latter reflecting the large-scale immigration of Mexican farm workers into the Southwestern states.

On balance, therefore, it is evident that the first generation immigrant population in the labor force in 1950 contributed a much smaller proportion of manpower to nearly all of the lower-level manual occupations than during the earlier era of mass immigration. Of equal significance, the sons and daughters of the latter immigrants had, as a group, experienced a high degree of upward occupational mobility in relation to their parents' occupations. Thus, by 1950, the native white population of foreign or mixed percentage -- the population of "foreign stock" -- held a greater-than-proportionate share of all the white collar occupations, a roughly proportionate share of the non-farm blue collar and service jobs and a much smaller relative share of the farm occupations.[26]

The Role of Internal Migration

The reversal of American immigration policy in the early 1920's was -- as we have noted earlier -- prompted, in part, by a number of ideological and political pressures. However, the fact that this policy has been maintained for a period of five decades can be attributed mainly to the development of alternative, internal sources of labor supply to meet the changing manpower needs of the post-World War I era. The most important of these sources was a large and growing volume of migration from the farms. The rural population, with its historically high natural growth rate, had probably always provided a significant source of manpower recruitment for industry and for other urban employment, beginning with the early decades of the 19th century. However, until the turn of the century, the continued substantial growth of the rural population (then mainly composed of farm residents) suggests that net migration from farm to city was of modest dimensions.

Beginning with 1910, separate statistics on the size of the rural-farm population have provided a basis for estimating the net outflows of population from farms to non-farm areas. These estimates indicate that, for the decade 1910-20, as a whole, approximately five million persons moved from farms to non-farm areas. During that decade, the farm population had continued to rise slightly until our entry into World War I, from 32.1 million in 1910 to a peak of 32.5 million in 1916. Between 1916 and 1919 it fell by 1.3 million, thus suggesting that a major portion of the farm-to-city migration in this decade was concentrated during the World War I period, in response to the sharp growth in urban employment opportunities created by expanding war employment and the virtual stoppage of immigration. Net migration from farms continued at a high rate in the decade of the 1920's, averaging nearly 600,000 per year; was temporarily slowed down during the depression decade of the 1930's (with some net reverse flow in 1931-32) and then reached its crescendo in the wartime decade of the 1940's, when a total of 10.6 million persons were drawn from farms to provide manpower for the World War II industrial mobilization and for the Armed Forces. It continued, moreover, near peak levels in the decade of the 1950's, when an additional 9.6 million persons moved from farm to non-farm areas. As a result, the resident farm population had been reduced by more than one-half from its pre-World War I peak of 32.5 million in 1916 to 15.6 million in 1960.

The extent to which farm emigrants had replaced the foreign immigrants as a major source of manpower for the expanding non-farm economy is suggested by the comparisons of these two population flows appearing in Table 10. In the decades prior to World War I, immigration had been the major source of accretion to our urban manpower supply, other than through natural population growth. Following World War I, the internal farm-to-city migrant moved into a dominant role. The net gains to the non-farm population from this source, in both the decades of the 1940's and the 1950's, substantially exceeded, in absolute volume, the gross inflow of immigrant aliens in the decade of peak immigration, 1901-10. The foregoing statistics on net farm out-migration exclude, moreover, the substantial outflows of non-farm residents from rural areas, such as the coal mining region of Appalachia or the Northern Michigan timber cutover area, which also added substantially to the urban labor supply during these decades.

The Negro Worker

Of particular significance, for our review of sources of manpower for lower level jobs, was the major role played by Negroes in this mass movement from farm to city. For five decades following their emancipation, the black population had remained highly concentrated in the rural South. In 1860, 90% of Negroes lived in the South (i.e., in the South Atlantic, East South Central, and South Central states); 50 years later, in 1910, 80% were still in the South. And while the small Northern Negro population had already formed enclaves in some of our larger cities, nearly 8 out of 10 Southern Negroes still resided in rural areas. The limited movement of the Negro population out of the rural South during the half century from 1860 to 1910, despite their very low level of living and restricted economic opportunities there, was directly related to the ready availability of large masses of white immigrants to Northern employers. In short, although the "push" of poverty and discrimination had been relatively constant factors in the condition of the Southern Negro population, the "pull" of job opportunity for them in the North had not yet emerged.

This situation was reversed by the stoppage of immigration during World War I and the sharp expansion of wartime manpower needs. Northern employers turned to the South and particularly to the Southern Negro to fill the void left by the suspended inflow of Italians, Slavs and other recent immigrant groups. The World War I period thus witnessed the first large-scale inflow into what were soon to become the "black ghettos" of our Northern metropolises. Particularly difficult conditions in the cotton belt further facilitated this movement as indicated by this description of the World War I Negro inflow into Chicago:

> "For several years the cotton kingdom had been ravaged by the boll weevil surging up from Mexico. Flood and famine, too, had continuously harassed the cotton farmers of the Mississippi Valley. Prior to 1915, however, there had been little to encourage plantation laborers to risk life in the city streets. Now there were jobs to attract them. Recruiting agents travelled South, begging Negroes to come North. For the first time, Southern Negroes were actually being invited, even urged, to come to Chicago. They came in droves -- 50,000 of them between 1910 and 1920." 27/

The initial momentum of Negro migration from the farm achieved during the first World War was maintained through the decade of the 1920's; it slowed down during the depression and then reached tidal proportions in the 1940's and 1950's, concurrent with sharp reductions in labor requirements in Southern agriculture, associated with introduction of the mechanical cotton pickers and diversification of crops. Although the most visible movement of the Negro population was to the Northern and Western cities, large numbers moved to Southern urban centers as well. As a result, by 1960, whereas 60% of the Negro population was still residing in the South, 73% were living in urban areas, as contrasted to only 27% in 1910. 28/

Within the urban economy, the types of jobs available to the Negro inmigrants in the decades between 1910 and 1940 were substantially the same as those previously filled by the small resident Negro urban population and by the more disadvantaged of the immigrant groups who had preceded them. By 1940, two-thirds of all Negro workers were in non-farm occupations, as compared to only one-half of the total in 1910. (Table 11.) All but a modest percentage of these, however, continued to be engaged in the low-skilled manual occupations: the men, predominantly, as unskilled laborers and service workers; the women, as domestics or in similar menial service occupations. During this period, the proportion employed as operatives or in other semi-skilled occupations had also grown gradually, from about 5% to 10% of the total. Very limited inroads had been made by Negro workers into the skilled crafts or the white collar occupations. In 1910, 11% of all Negro non-farm workers were reported in such occupations; by 1940, this percentage had risen only slightly to 13.5%. In contrast, the percentage of white non-farm workers in these occupations had grown from 51% in 1910 to 58% in 1940.

The World War II mobilization, with its attendant labor shortages, provided the first significant break-through of Negroes into these higher level occupational fields. The rapid expansion of defense-related employment in industry and government, combined with mobilization of millions of men into the Armed Forces, inevitably opened up a broader range of occupational opportunities for Negro workers, including both those already residing in urban areas and the large numbers of new wartime in-migrants from the rural South. Over this decade, the percentage of Negroes in farm occupations declined from nearly one-third to less than one-fifth of the total. The most significant growth was in the operatives group, which -- by 1950 -- accounted for over 18% of all Negroes in the labor force. Negro men and women also increased their representation in the white collar and skilled crafts occupations, which in combination, also accounted for 18% of all Negro non-farm workers in 1950, as compared to 13.5% in 1940. Following the war, the decade of the

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Table 11

Percentage Distribution of Negro Labor Force by Occupational Field: 1910-1960

Year	Total	Farm Occupations	Non-Farm Occupations				"All Other" Non-Farm as Percent of Non-Farm Total
			Total	Laborers and Service Workers	Semi-Skilled Workers & Operatives	"All Other" [b/]	
1910	100.0	50.4	49.6	38.7	5.4	5.5	11.0
1920	100.0	46.6	53.4	39.5	7.3	6.6	12.3
1930	100.0	36.1	63.9	46.7	9.4	7.8	12.2
1940	100.0 [a/]	32.8	66.6	47.3	10.3	9.0	13.5
1950	100.0 [a/]	19.0	69.5	45.5	18.3	15.7	18.0
1960	100.0	11.3	88.7	46.9	20.7	21.1	21.1

Note: The above percentage distributions differ slightly from those shown elsewhere in this study for corresponding years because of differences in occupational classification.

a/ Sum of items for these years does not equal 100.0% because of inclusion of individuals for whom no occupation was reported.

b/ Includes "skilled workers and foremen" and white collar occupations.

Source: Adapted from decennial Census statistics by Dale L. Hiestand, Economic Growth and Employment Opportunities for Minorities. Columbia University Press, 1964, p. 42.

1950's, punctuated by the partial mobilization for the Korean War, witnessed a continuation of the trends of the previous decade, as evidenced by a further reduction in the percentage of Negroes in farm occupations and additional moderate gains in the operatives, crafts and white collar occupations.

Some further insight as to the net effect of the influences described above on the occupational distribution of the Negro labor force is provided by the more detailed occupational distribution, by status groups, which we have compiled for the years 1910, 1950 and 1960. (Table 8.) By the latter year, the three highest status occupational groups as we have defined them, included 29% of the non-white labor force, as contrasted to only 7% in 1910. The overall proportion of Negroes in Group IV occupations remained relatively stable over this period, as a sharp reduction in the percentage of Negro farmers was offset by increases in the proportion of Negroes working as transport operatives, in various other operative occupations, and in intermediate-level service occupations, such as hospital attendants, waiters or waitresses. In contrast, the percentage of Negroes in the Group V occupations declined sharply, from 67% in 1910 to 44% in 1960, mainly reflecting the very sharp reduction in the farm labor occupations, including family workers.

Although these statistics confirm that a significant upgrading in occupational status of Negroes did occur, mainly during the 1940-60 decades, these gains were concentrated in certain of the occupations which had experienced a particularly rapid overall growth during this period, notably in some of the lower-paid professional and clerical occupations, in mechanical repair work, in transportation operative occupations (such as truck and taxi drivers) and in the more skilled service jobs. An analysis of the trends in

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relative concentration of Negroes in various occupations, (Table 9.) therefore indicates -- as would be expected -- that the *relative* improvement in occupational status of Negroes *as compared to white workers*, has been much more modest than indicated by trends in the overall occupational distribution of Negroes over this period:

1. From the summary statistics for 1950 by major Census group, (Table 7), it is apparent that -- relative to white workers -- Negroes had made very little progress in penetration of either white collar or the skilled crafts jobs. Among the lowest-status occupations, their movement from farm to city had resulted in a slightly reduced share of the farm laborer jobs, but in sharp increases in their relative proportion of jobs as nonfarm laborers or domestics. Negroes continued also to be disproportionately represented in other service occupations (other than protective service). Their most significant progress over this period had been in their movement into the semi-skilled "operatives" group, where they had achieved near parity by 1950, in contrast to their very limited representation in this occupational group in 1910.

2. The extent to which Negroes had effectively "replaced" white immigrants in some of the lower status non-farm occupations is indicated by the following comparison of the net change in the occupational concentration indexes for each group, between 1910 and 1950. For this purpose, we have ranked the major occupational groups in order of the increase of the concentration index for non-whites between the two years:

Net Change in Occupational Concentration Indexes for Non-Whites and Foreign Born, 1910-1950

Occupation Group	Non-Whites	Foreign Born White
Private Household Workers	+297	- 12
Laborers, Excl. Farm and Mine	+122	- 60
Operatives and Kindred Workers	+ 56	- 35
Craftsmen and Foremen	+ 18	- 5
Clerical and Kindred Workers	+ 18	- 3
Farmers and Farm Managers	+ 10	- 4
Sales Workers	+ 9	+ 13
Protective Service Workers	+ 8	- 31
Professional, Technical and Kindred Workers	+ 6	+ 13
Managers, Officials and Proprietors	+ 5	+ 25
Other Service Occupations	+ 1	+ 24
Farm Laborers and Foremen	- 19	+ 40

Thus, the three occupational groups which experienced the largest relative increase in proportions of Negro workers -- private household workers, non-farm laborers and operatives -- were also those in which the participation of foreign born whites had declined significantly. Conversely, the three occupations in which foreign born whites had shown the greatest relative increase over this period, farm laborers, "other" service workers, and the managerial group, were those in which the relative concentration of non-whites had either declined or showed little significant change over this period.

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3. The more detailed statistics for non-whites for 1910, 1950 and 1960 (Tables 8 and 9), provide insights as to trends in their relative concentration in more occupational detail, and also indicate a continuation of the longer-range trends, reflected in the summary statistics through 1950. Despite some further limited progress, non-whites continued to be significantly underrepresented in nearly all of the higher status Group I-III occupations. Among the Group IV occupations, they increased their relative share in most of the operative occupations, in the less-skilled construction crafts (painters, roofers, plasterers, etc.) and in the non-technical health services occupations. Non-whites, moreover, continued -- as in the past -- to be heavily concentrated in the Group V occupational category where increases in the non-white concentration index in most laborer groups offset small reductions in the personal service occupations.

4. Finally, as a useful summary device, Table 12 indicates the occupational progress made by non-whites relative to whites, based on a comparison of the respective occupational status index for these groups in 1910, 1950 and 1960. These comparisons indicate that the composite occupational status of non-white workers (based on the status ranks developed in Chapter I) declined, relative to white workers, from 52.5 in 1910 to 49.6 by 1950, and rose only to 52.7 by 1960 -- much the same as it had been a half century earlier.

White In-Migrants from Farm to City

Despite the fact that Negroes continued to supply a relatively large proportion of the labor for the lowest level occupational fields, our summary statistics indicate that the percentage of native white workers in these

Table 12

Occupational Status Indices for the Experienced Civilian Labor Force by Race: 1910, 1950, 1960 a/

	Non-White	White	Non-White Relative to White
1910	19.0	36.2	52.5
1950	22.1	44.6	49.6
1960	25.2	47.8	52.7

Note: The status index is our percentile score for each occupation, (Table 3, Col. 2), based on the percentage of white workers, with 12 or more years of education, of total workers, age 25-34 years, in each occupation, in 1960, weighted by the employment in each occupation group. See text for further discussion.

a/ 1910 data are for gainful workers, 10 years and over.
1950 data are for the experienced civilian labor force, 14 years and over.
1960 data are for the experienced civilian labor force, 16 years and over.

occupations had also increased as the foreign born population declined. When measured in terms of relative concentration, (Table 7), the proportionate participation of native white workers rose significantly in all of the lower-level blue collar and service occupations, other than domestic service, between 1910 and 1950, in contrast to declines in their relative concentration in white collar and farm occupations. The limited amount of detail available from earlier Censuses precludes a definitive analysis of the characteristics and origins of the native white labor force in these lower level jobs. Nevertheless, an analysis of the more detailed Census materials for the 1940-60 period, combined with collateral survey data, permit us to identify some of the key variables.

First, it is clear that native white in-migrants from farm to city, in common with the white immigrants and blacks, contributed disproportionately to the supply of workers for most lower-level and lower-middle level, urban occupations. As a group, they also suffered handicaps of limited education and lack of relevant vocational skills. This was true, particularly of those who migrated in large numbers to the industrial midwest or the West Coast from the deep South, from Appalachia, from the Ozarks and from other distressed rural areas.

One of the most definitive analyses of the occupational implications of the migration process is included in the comprehensive study of intergenerational occupational changes, by Blau and Duncan, based on a special CPS survey in March 1962. This survey included data on current occupations, occupation of first job and father's occupation, together with a wide range of relevant social and demographic characteristics, including migrant status, for a sample of men aged 20-64 years at the time of the survey. Of this sample, about 8½% had moved from rural areas to large cities. This group -- particularly those of rural farm background -- were found to hold occupations significantly lower in status than those born in cities, although they enjoyed a higher occupational status than non-migrant rural residents. In contrast to the experience of Negro migrants, the white migrants appear to have been handicapped only by inferior education and poor occupational preparation, rather than by any job discrimination based on their rural or Southern origin. Moreover, rural white in-migrants, once settled in cities, appear to have moved up the occupational ladder from low beginnings at a more rapid rate than indigenous white workers with similar qualifications. This process is explained by the authors, in part, on the basis of the selective nature of most migrant streams: "Men with ambition and initiative born amidst the poor opportunities of rural areas must move to cities to achieve upward mobility... Despite the fact that their poor qualifications force rural migrants to the bottom of the occupational hierarchy of the large city, they tend to achieve upward mobility."[29]

Additional insight as to the relative occupational concentration of farm to non-farm migrants is available from a special analysis of this group included in the 1950 Census of Population. The data cover individuals of both sexes who were residing in non-farm areas in 1950 but had reported a rural-farm residence one year earlier. The occupational distribution of this group thus provides a close approximation of the first jobs obtained by these migrants following their move from the farm. These more specific statistics support the

the findings of the Blau-Duncan study concerning the relatively low occupational status of in-migrants from the farm, as compared to other residents of non-farm areas. Thus, the highest relative concentration of such in-migrants in lower level jobs was in the non-farm laborer group, which accounted for 12.4% of all employed in-migrants as compared to 6.7% of all non-farm residents, resulting in an occupational concentration index of 185. (Table 13.) The in-migrants were also disproportionately represented in the operatives group and -- to a lesser extent -- in the craftsmen group, the latter probably reflecting the diverse mechanical and "handyman" skills acquired by many white farmers and farm family members in more recent decades.

Conversely, the migrants were underrepresented in the white collar occupational fields and in the heterogenous "service worker" group. It is noteworthy, however, that the proportion of in-migrants in professional and technical occupations was only slightly lower than the corresponding proportion of all non-farm workers, in contrast to much lower concentration indices in the other white collar occupations. This probably reflects the very high geographical mobility of college graduates from farm backgrounds and the particularly sharp differential for this group between employment and income opportunities in urban areas, as compared to those available to them in rural farm areas. It should be noted that the data we have cited refer to both white and non-white workers; however, since white workers accounted for 81% of all in-migrants in this year, it is evident that white rural in-migrants, as well as non-whites, had contributed a disporportionate share of the manpower for the less-skilled non-farm occupations.

Table 13

Relative Occupational Concentration of Migrants from Farm to Non-Farm [1] Areas Between 1949 and 1950, Compared to Total Non-Farm Residents: 1950

Occupation Group	Percent Distributions [2]		Occupational Concentration Index for Farm to Non-Farm Migrants [3]
	Total, Non-Farm Residents	Farm to Non-Farm Migrants	
	(1)	(2)	(3)
Total Employed in Non-Farm Occupations	100.0	100.0	100
Professional and Technical	10.1	9.5	94
Managers, Officials and Proprietors	10.4	5.6	54
Clerical Workers	14.4	7.9	55
Sales Workers	8.2	5.6	68
Craftsmen and Foremen	15.9	18.5	116
Operatives	22.5	29.8	132
Service Workers	11.8	10.7	91
Laborers	6.7	12.4	185

[1] Source: Adapted from data in U.S. Census of Population, 1950. Special Reports. Population Mobility-Farm-Nonfarm Movers, Table 3.

[2] Exclude non-farm residents employed in farm occupations and occupation not reported.

[3] Based on ratio of percentage of all non-farm migrants employed in a given occupational group to corresponding percentage of all employed non-farm residents.

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Although the findings from our analysis of 1950 Census data apply to only a one-year sample of migrants, these data -- when combined with the parallel findings from the Blau-Duncan longitudinal survey and with a wide range of other materials -- suggest that internal migration within the United States, typically from economically backward rural regions to expanding metropolitan centers, provided a continuing replenishing source of native white, as well as black, workers to perform many of the unskilled and semi-skilled manual jobs required in our growing urban economy. The fact that a disproportionate number of migrants entered these occupations appears to be due primarily, however, to their much lower level of educational achievement rather than to discrimination against white workers with a farm or Southern background, per se.

The Less Educated

The above discussion of the educational attainment of rural white in-migrants leads logically to a more general exploration of the implications for manpower supply in lower level occupations of the steady increase in educational attainment of the United States labor force. A few historical statistics will serve to place this trend in perspective:

- In 1900, illiteracy was still extensive among the more disadvantaged elements of the population. The overall illiteracy rate for persons 10 years and over was reported as 10.7% by the Census; moreover, 44.5% of non-whites and 12.7% of foreign born whites were reported as illiterate in any language as compared to 4.6% of the native whites. High school graduates represented only 6.4% of the

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17 year old population. The typical adult worker, early in the century, had an elementary school education or less.[30]

- By 1940, illiteracy rates had declined sharply -- to 2.9% for the total population, 10 years and over, and to 11.5% for non-whites, to 9.0% for the foreign born and to 1.1% for native whites. The percentage of high school graduates, in relation to the 17 year old population, had increased to 50.8%. Three out of ten workers in the labor force were high school graduates.

- By 1960, the percentage of new high school graduates had further increased to 65% and nearly one-half of all workers (46.8%) were then high school graduates.

This sharp uptrend in the length of schooling has been attributed to a number of concurrent social and economic influences: increased urbanization; compulsory school attendance laws and the lengthening of the mandatory period of schooling under these laws; rising standards of living and, particularly, the increasing requirements for education and training associated with the changing pattern of occupational demands in our increasingly technological society.

The rapid growth in white collar occupations, with their higher demands for education-based skills, has been emphasized in the latter context. Yet, a comparison of the rates of growth in the proportion of workers in white collar occupations with the increase in educational attainment of the labor

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force, indicates that the availability of jobs which, in earlier periods, were conventionally associated with higher levels of education, has not kept pace with the growth in educational levels. Thus, in 1900 the percentage of new high school graduates (6.4%) was significantly lower than the percentage of workers in professional, technical and clerical occupations, and corresponded to less than two-fifths of the total proportion of workers then in all white collar occupations. (Table 14.) At that time, even illiteracy -- much less lack of a high school diploma -- was not necessarily an insurmountable barrier to entry into a wide range of skilled and managerial occupations. Based on an inspection of 1890 Census data, Ginzberg and Bray found that -- although illiterates were concentrated in farming and in the manual non-farm occupations-- some small percentages were found in managerial and other high-status occupations, as well: "Illiterates earned their livelihood as clergymen, government officials, corporation executives, bankers, merchants, building contractors, and in other occupations usually associated with a considerable degree of education."31/

By 1940, this pattern had already been significantly altered; the percentage of new high school graduates (50.8%) substantially exceeded the percentage of workers in all white collar occupational categories (32.1%) and as a result, significant proportions of workers in all occupational groups now consisted of persons with a high school education or more.

A further widening in the gap between the proportion of high school graduates and the proportion of white collar workers occurred between 1940 and 1960. Thus whereas the percentage of all workers who were high school graduates in 1940 (30.4%) was then slightly below the percentage of workers in white collar occupations (32.1%), this differential was reversed by 1960, when the percentage of workers with a high school education or more (46.8%) significantly exceeded the percentage in white collar occupations (41.2%).

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Table 14

Trends in Educational Attainment and in Occupational Composition of the Labor Force: 1900 - 1970

Year	Educational Attainment			Occupational Composition 4/	
	Percent 1/ Illiterate	Percent High School Graduates, Per 17 Year Old Population 2/	Percent High School Graduates in Civilian Labor Force 3/	Percent of Workers in Professional and Clerical Occupations	Percent of Workers in All White Collar Occupations
1900	10.7	6.4	N.A.	7.3	17.6
1910	7.7	8.8	N.A.	10.0	21.3
1920	6.0	16.8	N.A.	13.4	24.9
1930	4.3	29.0	N.A.	15.7	29.4
1940	2.9	50.8	30.4	17.1	32.1
1950	3.2	59.0	39.3	20.9	36.6
1960	N.A.	65.1	46.8	26.3	41.2
1970	N.A.	76.5	64.5	31.7	48.0

1/ From Historical Statistics..., op. cit., p. 214. Data for 1910-1940 are for population 10 years and over; for 1950, for population 14 years and over and therefore not strictly comparable with earlier years.

2/ From Statistical Abstract of the United States, 1921, op. cit., p. 124, for all years except 1910. Data for 1910 from Historical Statistics..., op. cit., p. 207.

3/ Data for 1940-1960 refer to the experienced civilian labor force, ages 14 and over. Data for 1940 were adapted from Alba Edwards, op. cit., p. 181, and exclude public emergency workers as well as workers whose occupation was not reported. Data for 1950 from U.S. Census of Population, 1950. Special Reports Education, Table 11. U.S. Census of Population, 1960. Educational Attainment. Final Report PC(2)5B. Data for 1970 from Census Bureau 1/1000 public use tape and refer to experienced civilian labor force, 16 years and over. The comparable percentage for 1960 was 50.7%.

4/ From text Table 5.

The above comparisons have been based on relatively crude statistical indicators. For example, as suggested above, many white collar jobs, including those of proprietors of small establishments as well as the more routine clerical and sales jobs, do not require a high school education. Conversely, certain of the more sophisticated skilled craft and mechanical repair occupations do require significant educational background as well as specialized vocational training. However, for the period 1940-60 we do have available the results of a detailed analysis by James Scoville who derived estimates of the average years of education required by the labor force as a whole in 1940-1960, based on the length of schooling, or "general educational development," required for each Census occupation, and on the changing occupational distribution of jobs over this period. Scoville's estimates indicate that an increase of one-half year in schooling, from 9.99 years in 1940 to 10.37 years in 1960, was required as a result of the upgrading of the occupational structure over this 20-year period. (This did not allow for any change in schooling required associated with changes in technical job contents of specific occupations over this period.) In contrast, the actual median years of school completed, of the experienced civilian labor force rose by over two years over this period -- from 9.2 years in 1940 to 11.4 years in 1960.[32/]

In face of these trends, employers have been in a position to progressively increase formal educational standards for entry into a broadening range of the more desirable occupations. For example, in a survey of apprenticeship programs for the skilled crafts conducted by Marshall and Briggs in the mid-1960's, the authors found that "almost all apprenticeship programs require that applicants be high school graduates, and some require, or give extra credit for, specified courses in mathematics and sciences."[33] Further evidence of extensive and often questionable use of educational credentials in a wide array of civilian jobs is provided in recent studies by Ivar Berg and by Bedrosian and Diamond.[34]

Critics of the increasing use of educational "certification" such as a high school diploma, in selection of workers, have contended that these criteria do not necessarily predict actual job performance and that they have been used, at times, as a means of "screening out" black applicants or members of other educationally disadvantaged groups. There is substantial evidence that these criticisms are valid in many situations. Nevertheless, the extensive use of such criteria suggests that they may fulfill a valid economic function, as viewed from the perspective of the individual firm. For example, extensive research within the Military Services indicates that high school graduates, irrespective of their cognitive skills or educational achievement (as measured by scores on psychological qualification tests), have a much lower incidence of disciplinary problems and are much less likely to receive "unsuitable" discharges, than do enlisted personnel who have not completed high school. These and similar findings suggest that the attitudinal and emotional factors associated with successful adjustment to a high school environment were much more directly relevant to successful adjustment to a military environment than was mental attainment as such.[35] As a result of these and similar findings, the Armed Services in recent years have placed increased emphasis upon high school graduation as a recruit selection criterion.

Similar considerations -- although based on less sophisticated evidence -- may have influenced many employers in civilian industry in selection of workers

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for low-skilled jobs which may not require the cognitive knowledge associated with a high school degree, but which do require some assurance of worker stability and reliability. The high school diploma criterion has the further obvious advantage to the employer of being virtually costless, as compared to alternative methods such as psychological testing, detailed reference checks, or "trial and error" experimentation -- particularly under conditions when an adequate supply of high school graduates is available.

One of the consequences of the trend towards establishment of higher educational qualification standards by those employers and industries in a favorable labor market situation has been to progressively narrow the range of occupational options for workers with limited formal schooling. This trend is illustrated by our comparison of the relative occupational concentration of workers with less than 12 years of school in 1940 and in 1960. (Table 15.) As would be expected, the relative proportion of such workers was lowest, in both years, in the white collar occupations and highest in the farm occupations and among non-farm laborers and private household workers. Between 1940 and 1960, the relative proportion of non-high school graduates declined sharply in the professional and technical and in the non-farm managers group, as well as in protective service occupations; it showed relatively little net change in the clerical and sales group and in the craftsmen occupational groups, but rose sharply in such occupations as private household workers, farm and non-farm laborers, operatives, and in the "other services" occupational group. In effect, therefore, lack of educational credentials -- for native white as well as other racial/ethnic groups -- was proving to be an increasing barrier to access to the more desirable jobs and was forcing an increased concentration of such workers in the lower-level occupations.

Table 15

Relative Occupational Concentration of Workers in the Experienced Civilian Labor Force with Less than 12 Years of School Completed: 1940, 1960 1/

Occupation Group	1940			1960			Net Change in Concentration Indexes 1940-1960
	Percent Distributions		Concentration Index 2/ (<12 Years)	Percent Distributions		Concentration Index 2/ (<12 Years)	
	Total	Less Than 12 Years		Total	Less Than 12 Years		
WHITE COLLAR OCCUPATIONS							
Professional and Technical	7.2	1.4	32	11.3	1.9	17	-15
Proprietors, Managers, and Officials	7.8	6.3	81	8.5	5.1	60	-21
Clerical and Sales	16.6	9.7	58	22.3	14.3	64	+ 6
BLUE COLLAR WORKERS							
Craftsmen	11.6	13.4	116	14.3	17.0	119	+ 3
Operatives	18.7	22.1	118	19.9	27.5	138	+20
Laborers, Non-Farm	8.0	10.1	126	5.5	8.3	151	+25
SERVICE WORKERS							
Protective Service	1.4	1.6	114	1.1	1.1	100	-14
Other Service	6.2	6.9	111	7.9	10.5	133	+22
Private Household Workers	4.8	5.8	121	2.8	4.4	157	+36
FARM OCCUPATIONS							
Farmers and Farm Managers	10.6	13.7	129	3.9	5.9	151	+22
Farm Laborers	6.9	10.1	130	2.4	3.9	163	+33
	100.0	100.0	100	100.0	100.0	100	---

1/ Sources: 1940 data from Alba Edwards, op. cit., p. 181. Excludes public emergency workers. 1960 data from U.S. Census of Population, 1960, Occupational Characteristics, PC(2) 7A, Table 9.

2/ Concentration index is based on ratio of percentage of workers with less than 12 years of education in a given occupational group to corresponding percentage for all workers.

Young Workers

Younger workers, because of their more limited experience and skills, typically tend to begin their work careers at the lower rungs of the occupational ladder. Farm children and youth have historically been an important component of the unpaid labor force on small family farms, particularly during periods of peak seasonal activity. In non-farm activities, younger workers have -- depending in part upon their educational preparation -- tended to be concentrated both in the low paid factory and service jobs and in the least-skilled clerical and sales occupations. With the steady lengthening of the period of schooling, there have been progressive declines in the proportion of younger persons (under age 25) available for regular full-time employment, but an increasing proportion of youth of high school or college age have become part of the part-time labor force, whose employment opportunities have mainly been concentrated in trade, services and other non-manufacturing industries.

The extent to which younger workers differentially contributed to the supply of manpower for low-status occupations in more recent decades, is indicated by the summary data for 1940 and 1960 in Table 16. In both of these years, workers aged 16-24 years accounted for a particularly large proportion of the farm laborer work force and were also disproportionately concentrated in such occupations as non-farm laborers, clerical and sales occupations and -- in the case of males -- in the operatives and service occupational groups as well. Conversely they accounted for a relatively small proportion of the labor force in the managerial, professional and craftsmen occupations.

Between 1940 and 1960, younger workers increased their relative share of most of the white collar occupational groups, particularly in clerical and

Table 16

Occupational Concentration of 16-24 Year Old Workers by Major Census Occupational Group and Sex: 1940, 1960

Sex and Occupational Group	Percent, Ages 16-24, in Each Occupation Group		Concentration Indices 1/	
	1940	1960	1940	1960
MALE WORKERS				
Total, Experienced Civilian Labor Force	17.7	14.5	100	100
Professional and Technical Workers	8.6	9.3	49	64
Farmers and Farm Managers	6.7	5.0	38	35
Managers, Proprietors, Officials, Excluding Farm	3.7	3.4	21	23
Clerical and Sales Workers	20.7	19.7	117	136
Craftsmen and Foremen	9.0	8.8	51	61
Operatives	21.1	17.4	119	120
Service Workers, Including Private Household Workers	19.3	17.5	109	121
Farm Laborers and Foremen	49.7	39.2	281	270
Laborers, Excluding Farm	23.2	25.1	131	173
FEMALE WORKERS				
Total, Experienced Civilian Labor Force	29.8	19.3	100.	100
Professional and Technical Workers	21.4	15.8	72	82
Farmers and Farm Managers	3.1	5.0	10	26
Managers, Proprietors, Officials, Excluding Farm	4.8	4.2	16	22
Clerical and Sales Workers	34.7	25.1	116	130
Craftsmen, Foremen, and Operatives	30.6	12.5	103	65
Private Household Workers	31.0	19.6	104	102
Service Workers, Excluding Private Household Workers	27.3	17.5	92	91
Laborers, Including Farm	44.0	22.5	148	117

Sources: 1940 data from 1940 Census of Population, Occupational Characteristics, Table 1; exclude public emergency workers. 1960 data from 1960 Census of Population, Occupational Characteristics, Table 4.

1/ Occupational concentration index based on ratio of percentage of workers 16-24 years, in a specific occupation group to corresponding percentage for the total experienced civilian labor force.

sales jobs, reflecting in part the relatively sharp expansion of employment opportunities in the professional, clerical and sales occupations as well as the higher educational attainment of younger workers in the 1960 labor force, as compared to their 1940 counterparts. At the same time, younger male workers also increased their relative share of the non-farm laborer and the service occupations, probably due to the greater availability of part-time employment opportunities in these fields, as compared to semi-skilled or skilled industrial jobs. Although younger women continued to be overrepresented (as compared to women, 25 years and over) in such occupations as non-farm labor and private household work, this pattern was much less pronounced than among young male workers, partly due to increases in the labor force participation of women 25 years and over, between 1940 and 1960, many of whom were also constrained in their occupational choices to the less-skilled jobs and to those which offered flexible work schedules.

It will be noted that the data shown for both 1940 and 1960 have excluded workers aged 14-15 years, in the interest of comparability with more recent labor force data. Inclusion of the latter age group, and restriction of our analysis to the "teenage" labor force (i.e., ages 14-19) would manifestly have resulted in even greater variation in the occupational concentration indices than those shown in Table 15 for the 16-24 year age group.

D. Summary and Conclusions

In this chapter we have surveyed the changing patterns of demand and sources of manpower for lower status jobs as our economy was transformed over a period of more than a century from its agrarian beginnings into a highly urbanized industrial -- or post-industrial -- society. Throughout this era, we found one constant in terms of low-level manpower sources -- the black worker. Imported first as slaves to perform the back-breaking toil of the Southern plantation economy, black men and women had -- for a full century after emancipation -- remained largely concentrated in the most menial, least skilled and lowest paid occupations, even during periods of rapid industrial growth and of equally rapid shifts in occupational structure. The nature of their occupational duties had, of course, changed over the years, as growing numbers moved from Southern farms to Northern cities; yet, between 1910 and 1960, their *relative* occupational status, as compared to white workers, had shown no net improvement.

Black workers, alone, were however not sufficient in numbers to fill our total low-level manpower needs. An additional and major source of labor supply for these jobs was provided by the mass inflow of white immigrants, particularly during the period of rapid industrialization between the mid-1800's and the outbreak of World War I. Each generation of these immigrants in turn produced its share of laborers, of semi-skilled factory workers and low-level service workers -- with disproportionate contributions from the most disadvantaged of these new ethnic strains, i.e., the Irish, then the South and East Europeans and, most recently, the Latin-Americans. With the termination of mass immigration after World War I, their place was taken by the increased inflow of native white as well as black migrants from rural farm areas, which peaked during the World War II period and the decade of the 1950's. Handicapped by inferior education and by lack of industrial skills -- as well as by racial discrimination, in the case of the blacks or other minority groups -- these migrants from farm to city were differentially concentrated in the lower-skilled manual and service occupations in urban areas.

The initial educational and training handicaps of these immigrant and internal migrant groups were shared by significant numbers of indigenous white workers as well -- whether due to lack of opportunities or limited aptitudes. With the growing general educational level of the labor force, our analysis suggests that those with the least education have been increasingly relegated to the lowest rungs of the occupational ladder. Among them, the young worker has been further handicapped by lack of work experience and of those practical skills typically acquired on the job rather than through formal education. Therefore -- in addition to the other manpower sources identified above -- each generation of young workers has probably performed a disproportionate share of low-level work, as part of its rites of initiation into the labor force.

Thus, our historical review has identified a number of key socio-demographic characteristics which, in combination, have distinguished workers in lower-level occupations from those in higher status jobs, i.e., race, nativity, rural origins, educational level and age. The composition of the "low-level" labor force has, in turn, varied from period to period as a result of the changing proportions of workers with these characteristics in the labor force and of concurrent changes in the occupational distribution of labor demand.

It is probable, too, that this complex interaction of supply and demand factors has exercised an important influence upon a number of related labor market and economic trends -- notably, the changing pattern of occupational wage differentials and the rate of mechanization, i.e., substitution of capital for labor in various industries or occupations. Thus, a number of economists have associated fluctuations in wage rate differentials for skilled vs. unskilled labor and the long-term trend towards a narrowing of occupational wage differentials with changes in the availability of "cheap" unskilled labor from external (immigrant) or internal (migrant) sources of supply as well as with the steady increase in educational attainment of the labor force.[36] Similarly, changes in availability of labor and in differential wage rates have been one of the factors affecting the rate of investment in labor-saving machinery in various industries.[37]

Historical analyses of occupational supply trends and of their impacts have been handicapped, however, by inherent limitations of data sources -- notably, the lack of reasonably comparable statistics on the composition of the labor force by occupation over a period of decades. As noted earlier in this chapter, decennial statistics on the labor force by occupation classified on a basis comparable to that used in recent Censuses are available only for the period since 1900, while more detailed data on such characteristics as nativity, race, educational level and occupation, have been developed on a comparable basis only for selected benchmark years during this period. Moreover, with limited exceptions, the published Census statistics do not permit a systematic cross-classification of these relevant characteristics so that, for example, the separate influence upon occupational composition of such factors as educational attainment can be measured, as against factors such as race, age or sex. This capability has emerged for the first time as a result of the production and dissemination by the Bureau of the Census of public use sample tapes for the 1960 and 1970 Censuses of Population and has served as the basis for the more intensive analysis of recent occupational supply trends in the following chapter.

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Chapter II
Footnotes

1/ Population data from U.S. Bureau of the Census, Historical Statistics of the United States, Colonial Times to 1957, p. 14; Labor force estimates from Stanley Lebergott, Manpower in Economic Growth: The American Record Since 1800, McGraw Hill, 1964, pp. 510-511.

2/ Historical Statistics..., op. cit., p. 61.

3/ Historical Statistics, Ibid.

4/ George M. Stephenson, A History of American Immigration, 1820-1924, Ginn and Company, Boston, 1926.

5/ John R. Commons and Associates, History of Labor in the United States. New York, MacMillan and Company, 1935, p. 414.

6/ Caroline T. Ware, The Early New England Cotton Manufactures: A Study in Industrial Beginnings, Houghton Mifflin, 1931, p. 234.

7/ Commons, op. cit., p. 489.

8/ "Frederick Douglass' Paper," March 4, 1853, quoted in: Leslie H. Fishel, Jr. and Benjamin Quarles, The Black American: A Documentary History. New York, William Morrow and Company, 1970, p. 143.

9/ Lebergott, op. cit., p. 510.

10/ Alba M. Edwards, Comparative Occupation Statistics for the United States, 1870 to 1940, Table 8.

11/ Historical Statistics, op. cit., pp. 56-57.

12/ Ibid.

13/ Cited by Eugene P. Foley, "The Negro Businessman," in the Negro American, Vol. 2, Daedelus, Winter 1966, p. 117.

14/ Historical Statistics... op. cit. p. 506; Statistical Abstract of the United States, 1971, p. 495.

15/ The percentage of women, 14 years and over, in the labor force is estimated at 20.0% in 1900 and 22.7% in 1920; directly comparable statistics for 1910 not shown because of overenumeration of farm family workers in the latter Census. Historical Statistics.... op. cit., p. 71. The percentage of women in the labor force in 1960 from the Statistical Abstract... op. cit., p. 212.

16/ Harold Wool, The Military Specialist, Johns Hopkins Press, 1968, pp. 2, 28.

Footnotes, continued

17/ *Ibid*., p. 52.

18/ For a useful summary of immigration legislation of this period, see Don D. Lescohier, *Working Conditions*, *op. cit*., Chapter II.

19/ *Ibid*., p. 25.

20/ Marion T. Bennett, *American Immigration Policies*, Public Affairs Press, Washington, D.C., 1963, Chapter V.

21/ Lescohier, *op. cit*., pp. 28-30

22/ Lescohier, *op. cit*., p. 146.

23/ *Historical Statistics*..., *op. cit*., pp. 58-59, and *Statistical Abstract for the United States, 1971*, *op. cit*., p. 89.

24/ Cited in Nathan Glazer and Daniel Patrick Moynihan, *Beyond the Melting Pot*, The M.I.T. Press, 1963, pp. 93-94. United States total from U.S. Census of Population; 1960, *Puerto Ricans in the United States* PC(2)-1D, Table.1.

25/ *Historical Statistics*..., *op. cit*., Table C115-125 and *Statistical Abstract*..., *op. cit*., p. 91.

26/ Hutchinson, E. P. *Immigrants and Their Children, 1850-1950*. A Volume in the Census Monograph Series. John Wiley and Sons, Inc., New York, 1950, p. 202.

27/ St. Clair Drake and Horace R. Cayton. *Black Metropolis*. Harcourt, Brace and Co., New York: 1945, p. 58.

28/ Marion Hayes, "A Century of Change: Negroes in the U.S. Economy, 1960-1960," *Monthly Labor Review*, December, 1962.

29/ Peter M. Blau and Otis Dudley Duncan, *The American Occupational Structure*, John Wiley and Sons, p. 270.

30/ This is suggested by the fact that the median years of school completed by men, 75 years and over as of 1950 was 7.9 years (U.S. Census of Population, 1950. *Special Reports Education*. Table 5.)

31/ Eli Ginzberg and Douglas W. Bray, *The Uneducated*, Columbia University Press, New York 1953, p. 30.

32/ James G. Scoville, *op. cit*., p. 67.

33/ F. Ray Marshall and Vernon M. Briggs, Jr., *The Negro and Apprenticeship*. The John Hopkins Press, Baltimore, 1967, p. 42.

Footnotes, continued

34/ Ivar Berg, Education and Jobs: The Great Training Robbery, Praeger, 1970, Chapter IV; Hrach Bedrosian and Daniel E. Diamond, Hiring Standards and Job Performance, U.S. Department of Labor, Manpower Research Monograph No. 18.

35/ Harold Wool, The Military Specialist, op. cit., pp. 87-88.

36/ See, for example, Paul Douglas, Real Wages in the United States; Lloyd G. Reynolds and Cynthia H. Taft, The Evolution of Wage Structure (New Haven: Yale University Press, 1956); Stanley Lebergott, Manpower in Economic Growth, op. cit., p. 162.

37/ Kendrick notes, for example, that an increase in the capital-labor ratio in agriculture during the period 1937-48 resulted from the World War II farm labor shortage. John W. Kendrick, Productivity Trends in the United States (Princeton: Princeton University Press, 1961), p. 151. See also, comment by Solomon Fabricant, in which he associates the relatively rapid long-term growth in tangible captial, with the differential increase in unit labor costs, relative to capital. Ibid., p. xli.

Chapter III

Trends in Occupational Labor Supply, 1960-70

A. Summary Labor Force Trends

The decade of the 1960's witnessed a continuation and intensification of a number of the labor force trends of preceding decades, as well as the emergence of new forces with important implications for both demand and supply in lower level occupations. Among the major developments were:

(1) the entry into the labor force of the exceptionally large generation of youth born during the post-World War "baby boom";

(2) the attainment and maintenance of sustained high levels of labor demand and of low overall unemployment rates in the second half of the 1960's, as a result of the Vietnam War and accompanying expansionist fiscal policies;

(3) a continued rapid expansion in the growth of white collar and service occupations; and

(4) emergence of a national commitment towards the goal of equal employment opportunity for Negroes and other minority groups which -- in conjunction with favorable labor market conditions -- made possible occupational upgrading of non-white workers, at a significantly more rapid rate than in preceding decades.

These trends are documented by the summary statistics appearing in Table 17. The more general implications of these trends are reviewed briefly below.

Table 17

Selected Labor Force Trends, 1950-1970 1/

	1950-1960	1960-1970		
		1960-1970	1960-1965	1965-1970
	Percent Changes (Average Annual) 2/			
TOTAL LABOR FORCE	1.3	1.9	1.4	2.3
Men	0.8	1.1	0.8	1.3
Women	2.6	3.6	2.5	4.1
Ages 16-24	0.4	5.4	4.2	5.5
Ages 25 and Over	1.5	1.1	0.8	1.4
ALL EMPLOYED WORKERS, TOTAL 3/	1.0	2.0	1.6	2.1
White Collar Workers	2.8	3.3	2.3	3.9
Craftsmen, Operatives and Service Workers (excluding Household)	1.2	2.1	2.3	1.7
Non-Farm Laborers, Private Household Workers	0.02	-0.4	0.4	-1.3
Farmers and Farm Laborers	-4.1	-4.0	-4.3	-4.6
NON-WHITE EMPLOYED WORKERS, TOTAL 3/	1.8	2.2	2.1	2.1
White Collar Occupations	7.5	11.2	6.8	11.6
Craftsmen, Operatives and Service Workers (excluding household)	2.8	3.9	3.8	3.4
Non-Farm Laborers, Private Household Workers	0.2	-2.2	-0.04	-4.3
Farmers and Farm Laborers	-4.8	-6.1	-5.8	-9.0
	Average Unemployment Rates 4/			
TOTAL, 16 YEARS AND OVER	4.5	4.8	5.7	3.8
Ages 16-24	8.8	10.2	11.8	8.9
NON-WHITES, 16 YEARS AND OVER	8.2	8.9	10.8	7.2
Ages 16-24	14.3	17.9	20.0	16.3

1/ Data adapted from annual average statistics, based on Current Population Surveys, appearing in Manpower Report of the President, 1971, Statistical Appendix, op. cit., except as otherwise noted.

2/ Percent changes not compounded.

3/ Occupational statistics for 1950-60 are based on data in decennial Censuses of Population, for 1950 and 1960, and refer to employed workers, 14 years and over. Data for 1960-70 are from Current Population Surveys and refer to employed workers 16 years and over.

4/ 1960-65 average unemployment rates based on 1960-64 data, inclusive. 1965-70 average unemployment rates based on 1965-69 data, inclusive.

1. Labor Force Growth -- During the 1960's, the total labor force, aged 16 years and over, expanded from an average of 73.0 million in 1960 to 85.9 million, an increase of more than 19%. This rate of growth contrasted with an increase of only 11% in the 1950's and exceeded that for any comparable period since the pre-World War I decade, 1900-10, when mass immigration was at its peak.[1/] In contrast to that earlier era, the labor force expansion of the 1960's resulted very largely from natural population growth. Although net immigration rose moderately from an average of about 300,000 per year in the 1950's to about 400,000 per year in the 1960's, its contribution was dwarfed by the large-scale inflows into the labor force of the first post-World War II generation. The number of 16-24 year olds in the labor force increased by 54% between 1960 and 1970, as contrasted to an increase for that age group of only 4% during the 1950's, when the much smaller generation of youth born mainly during the depression decade of the 1930's had reached working age.

Another significant source of labor force growth during the 1960's decade was provided by the entry or reentry of large numbers of women into the work force. The proportion of women, ages 16 and over, in the labor force rose from 37.8% in 1960 to 43.4% in 1970, with particularly large increases among married women including those with school-age or pre-school age children. This reflected a continuation of the longer trend towards increased work participation of women, resulting from expanding work opportunities for them in white collar and service-type occupations and from a reduction of the time demands upon them for performance of household duties, as well as from the generally favorable labor market conditions in the second half of the decade. These gains were partly offset by a reduction in the overall proportion of men, 16 years and over, in the work force, from 84.0% to 80.6%, due mainly to reduced labor force participation by college-age youth and by older men, 55 years and over.

Non-white workers shared less than proportionately in the overall labor force growth over the decade. As shown in Table 18, the labor force participation rates of non-white men declined more sharply than for white men, whereas the rates for non-white women rose much more slowly than those of white women. This disparity in trends was widest for Negro male teenage youth whose labor force participation rates declined by about ten percentage points over the decade, whereas those for white male teenagers showed little net change.

2. Employment and Unemployment -- The decade of the 1960's was characterized by rapid employment growth, which more than kept pace with the rate of labor force expansion. Total employment rose by 13.7 million, or 20% between 1960 and 1970, with a relatively large share of the increase concentrated in the period 1965-70, following our large-scale military commitment in Vietnam. This increase in civilian employment, in combination with a net growth of 700,000 in the number of active-duty military personnel, resulted in a reduction in the unemployment rate from an average of 5.7% in 1960-64 to 3.8% in the second half of the decade.

These gains were not, however, shared equally by all elements of the working population. Youth generally experienced increased difficulty in the labor market as evidenced by a growing disparity between their unemployment rates and those of adult workers. Thus, whereas the overall unemployment rate for workers aged 16 years and over had dropped from an average of 4.5% in the

Table 18

Civilian Labor Force Participation Rates by Sex, Age and Race: 1960, 1970

	White.			Non-White		
	1960	1970	Net Change	1960	1970	Net Change
MALE TOTAL, 16 YEARS AND OVER	83.4	80.0	-3.4	83.0	76.5	-6.5
16-17	46.0	48.9	2.9	45.6	34.8	-10.8
18-19	69.0	67.4	-1.6	71.2	61.8	-9.4
20-24	87.8	83.3	-4.5	90.4	83.5	-6.9
25-34	97.7	96.7	-1.0	96.2	93.7	-2.5
35-44	97.9	97.3	-0.6	95.5	93.2	-2.3
40-54	96.1	94.9	-1.2	92.3	88.2	-4.1
55-64	87.2	83.3	-3.9	82.5	79.2	-3.3
65 Years and Over	33.3	26.7	-6.6	31.2	27.4	-3.8
FEMALE TOTAL, 16 YEARS AND OVER	36.5	42.6	6.1	48.2	49.5	1.3
16-17	30.0	36.6	6.6	22.1	24.3	2.2
18-19	51.9	55.0	3.1	44.3	44.7	0.4
20-24	45.7	57.7	12.0	48.8	57.7	8.9
25-34	34.1	43.2	9.1	49.7	57.6	7.9
35-44	41.5	49.9	8.4	59.8	59.9	0.1
45-54	48.6	53.7	5.1	60.5	60.2	-0.3
55-64	36.2	42.6	6.4	47.3	47.1	-0.2
65 Years and Over	10.6	9.5	-1.1	12.8	12.2	-0.6

Source: Manpower Report of the President, 1971, op. cit., Table A-4.

decade 1950-60 to 3.8% in 1965-69, the corresponding rates for young workers, aged 16-24 years, rose from 8.8% to 10.2% between these to periods. These difficulties were accentuated, moreover, in the case of non-white youth, whose unemployment rates throughout this period were substantially higher than for young white workers.

The very rapid growth in the number of young workers was a major factor contributing to the differential growth in youth unemployment in the 1960's. A large proportion of these new entrants were either students seeking part-time employment or school leavers who began looking for full-time jobs with little or no specific occupational preparation. The disparity between the number of youth available for low-skilled entry-level jobs, and employment opportunities for them was most severe in the case of Negro teenaged youth residing in urban poverty neighborhoods and was reflected in their extremely high unemployment rates (ranging between 24% and 36% in the years 1967-70), as well as in their relatively low rates of labor force participation.[2]

3. Major Occupational Groups -- An initial perspective on the broad trends in employment by occupation is also provided by the summary statistics in Table 17, based on combinations of data for the major Census occupational groups. As in preceding decades, the 1960's witnessed a continued rapid growth in white collar employment and a continued sharp decline in farm employment. Among the other major occupational groups the craftsmen, operatives and service groups (other than household workers) registered moderate gains, while the unskilled laborers and private household workers groups experienced small net declines over the decade.

A comparison of the annual average percentage changes in employment between the first half and the second half of the decade offers some significant contrasts. The rate of increase in white collar employment was sharply stepped up in the period 1965-70, reflecting increased demands for professional, technical, clerical and administrative workers in the growing "services" sector of the economy, as well as in many defense-and space-related manufacturing activities. Concurrently, the reduction in farm employment was accelerated and employment in low-skilled non-farm occupations (laborers, domestics) turned downwards, as compared with a small net gain for the latter groups in the first half of the 1960's.

As a result of these trends, the percentage of the experienced civilian labor force in white collar occupations rose from 42.2% in 1960 to 48.0% in 1970, while the proportion in farm occupations declined from 6.3% in 1960 to only 3.6%, in 1970. The proportion of employed workers in each of the blue collar occupational groups also declined over the decade. However, the "service worker" occupational group, excluding private household workers, increased its share of the total, reflecting sharp growth in such occupations as hospital attendants, food service workers and protective service workers. (Table 4.)

4. Occupational Trends for Non-White Workers -- As noted in Chapter II, the decade of the 1950's had provided some indication, based on our occupational status measures, of a small narrowing in the occupational status gap between non-white and white workers. This is reflected, too, in the summary occupational trends shown in Table 17, which indicate much higher annual percentage increases for non-white workers in white collar occupations and for the combined

group of craftsmen, operatives and service workers in the 1950's than for all employed workers and a more rapid withdrawal of Negroes from farm employment.

This process of occupational advancement of non-white workers was accelerated in the decade of the 1960's, and particularly in the second half of that decade. The annual average percentage increase in employment of non-whites in white collar occupations rose from 7.5% in the 1950's to 11.2% in the 1960's, in contrast to corresponding increases for all employed workers of 2.8% and 3.3% respectively. Conversely, employment of Negroes in farm occupations and in the least skilled non-farm occupations (laborers, domestics) declined much more rapidly than for all employed workers.

A more detailed analysis of the extent of this occupational upgrading will be presented later in this chapter. However, these trends generally can be attributed to a combination of factors: (1) the high level of aggregate labor demand during the Vietnam War period; (2) the rapid progress in educational attainment of non-whites, including increased opportunities for vocational training and work experience under new federal manpower programs; and (3) the reduction in discriminatory barriers against employment of non-whites in higher status jobs, as a result of the climate resulting from the civil rights movement of the 1960's and from equal employment opportunity programs. It has also been suggested that, in this climate of rising expectations, non-whites and particularly non-white youth, have increasingly "rejected" employment in low status jobs, such as domestic service or unskilled, casual labor -- and, in the absence of more suitable jobs, have contributed to the increased proportions of non-white youth reported as either unemployed or as "not in the labor force," over the decade.

* * * * * *

Although the summary occupational statistics reviewed above provided important insights as to broad trends in the occupational distribution of the labor force during the past decade, they have suffered from a number of limitations for purposes of this study. As discussed in Chapter I, the standard Census major occupational groups have been found to be inadequate for purposes of measuring relative occupational status. Moreover, constraints of sample size have tended to severely limit the amount of CPS data available on the changing socio-demographic characteristics of workers by occupation.

For these reasons, a major aspect of the current research effort consisted of preparation of detailed occupational labor force matrices, based on the decennial Census public use tapes for 1960 and 1970. The methods used in developing these data and the resulting findings are described in the balance of this chapter.

B. The Occupational Labor Force Matrices

In order to provide the data base for analysis of occupational labor supply trends in the decade 1960-70, our research plan provided for a series of detailed cross tabulations of the labor force in each occupation, classified by a number of relevant socio-demographic characteristics. The availability

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of public-use sample tapes for both the decennial Censuses of Population of 1960 and 1970 provided a unique opportunity to analyze these trends in greater detail than had been possible in the past.

This task was greatly complicated, however, by the introduction of major revisions in Census occupational classifications and in related procedures affecting the reporting and processing of occupational information for the 1970 Census. These revisions and the adjustment procedure used to improve the comparability of Census-based occupational data for 1960 and 1970 are described in detail in the Technical Appendix to this chapter. The major steps in this procedure are summarized below:

1. Occupational Grouping -- An initial work step consisted of a reconciliation of the 1960 and 1970 occupational classifications to establish the maximum feasible occupational detail for purposes of 1960-70 comparisons, with particular emphasis on "lower-level" and "middle-level" occupations. On the basis of this analysis and of related considerations of sample size, the lists of "detailed" occupations used in the 1960 and 1970 Censuses, totaling 297 and 441, respectively, were consolidated into 57 occupational clusters. Of these, 12 occupational clusters consisted of disaggregations of major groups of operatives (exclusive of transport operatives and of certain other specified occupations), and of non-farm laborers, by broad industrial divisions. In these groupings, an effort was made to assure homogeneity of occupations within each occupational cluster, based on such criteria as earnings, social-economic status, prestige ranking and demographic composition.

The term "occupation," as used in the analysis of the resulting data, refers to these separate occupational clusters. The term "occupational status group" refers to the further aggregation of these data into five broad groups, based on the criteria developed in Chapter I. An intermediate level of occupational detail, identified as "occupational subgroup," has been used in some tables. This consists of a consolidation of those occupational clusters within each occupational status group, which are included in the same "major occupational group" under current Census occupational classifications, thus retaining a capability of rearranging our data in accordance with the conventional Census major occupational groups where this proves desirable for comparative purposes.

2. Tabulations of Decennial Census Data -- Based on the above occupational groupings, detailed tabulations were developed from the Census Bureau's 1:1000 public use sample tapes for 1960 and 1970, in which the experienced civilian labor force in each occupation (i.e., employed workers and unemployed workers with prior work experience) was classified by sex, race (white or nonwhite), by age group and by educational attainment group. The age groups used were: ages 16-24, 25-34, 35-44, 45-54, 55 years and more. The educational attainment groups, based on years of school completed were: less than 9 years, 9 to 11 years, 12 years and 13 years and over.

These tabulations thus provided the basic data for construction of "occupational labor force matrices" for 1960 and 1970, in which the labor force in each of 57 occupations was distributed among the 80 socio-demographic categories, based on sex, race, age group and educational attainment. In addition, supplementary characteristics by occupation such as school enrollment status, hours of work, state/country of birth and earnings were tabulated, and -- as appropriate -- have been used to further disaggregate the labor force characteristics of the primary matrix.

3. Occupational Trend Adjustments -- The 1970 revisions in the decennial Census occupational statistics resulted in a break in comparability with the available data from the 1960 as well as earlier Censuses. To permit some trend comparisons, the Census Bureau has published occupational statistics for the experienced civilian labor force in 1960, in which the number in each occupation have been estimated in accordance with the revised 1970 Census occupational definitions, based on a recoding of a sample of 100,000 1960 Census schedules. However, these statistics are limited to totals for each occupation by sex. Moreover, no attempt was made in these estimates to allow for the effect of concurrent changes in Census occupational reporting and processing procedures.

Fortunately, for purposes of this study, the Current Population Survey did not introduce any of the revisions in occupational definition or enumeration procedures of the 1970 decennial Census until January, 1971. The CPS occupational data for the decennial Census enumeration weeks (in March 1960 and March 1970, respectively) thus provided a potentially more reliable measure of occupational trends over the decade than did the published adjusted 1960 Census occupational data, within limits of CPS sample reliability and available occupational detail.

A comparison of occupational labor force trends over the decade, based on these alternative sources, did in fact show statistically significant deviations for a number of major Census occupational groups and subgroups.[1/] Accordingly, the statistics on the experienced civilian labor force by occupation for 1970, derived from our Census tabulations of the 1970 public use tapes,

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[1/] See Technial Appendix, Table 7.

were adjusted to conform to the 1960-70 trends shown for the corresponding occupation or occupational grouping by the CPS data. Since the degree of occupational disaggregation available from the CPS tabulations was considerably less than that adopted for the present study, the 1970 trend adjustment ratios based on these broader occupational groupings were applied to each of the more specific occupations included within these groups, based on our classification scheme, and to each of the socio-demographic components of the labor force in such occupations.

4. Final Matrix Adjustments -- Although the CPS trends for 1960-70 served as our controls in establishing the level of the total experienced civilian labor force in each occupation in 1970, the decennial Census tabulations provided the source data for distributing the labor force by occupation into 80 socio-demographic subgroups. The corresponding Census totals for each of these 80 subgroups, in turn, served as our controls in the columns of the matrix. Predictably, the adjustments in the labor force totals for specific occupations, when distributed proportionately among the socio-demographic groups, resulted in disparities between the sum of the adjusted values for specific socio-demographic subgroups, (e.g., white males, aged 16-24, with 9-11 years of education), and the corresponding totals for such subgroups as derived from the Census tabulations. A final ratio adjustment in the matrix was therefore needed to force the totals to the Census total for each socio-demographic subgroup. This second adjustment did not exceed 2% for any column in the matrix.

* * * * * * *

\(1.)

Although we believe that the adjustments described above have substantially improved the usefulness of the Census data for purposes of analysis of occupational trends over the decade, their limitations will be apparent. The highly desirable efforts of the government statisticians to improve the quality of Census occupational statistics have entailed a high cost in terms of loss of comparability. It is unfortunate that the Census Bureau did not directly undertake -- or perhaps, was not in a position to undertake -- the types of adjustments described above particularly in view of our unique dependence upon decennial Census data for detailed analysis of occupational trends in the United States. To illustrate, the original occupational "recoding" of the sample 1960 Census schedules, to conform with the revised 1970 classifications, would have been of much greater value for the purposes of this study and related research, if the sample of 1960 Census schedules, recoded in terms of 1970 occupational classifications, had been tabulated on the basis of additional personal characteristics, such as race, age and educational attainment, rather than sex alone, and if efforts had been made to estimate the additional impact of collateral revisions in Census enumeration and processing procedures upon the resulting statistics. In the absence of more definitive source data, it is our belief that the "matrix" estimates developed here provide a reasonably reliable picture of the basic trends under review, particularly when consolidated for the broader occupational status groups or subgroups.

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C. Labor Force Trends by Occupation and Status Group

As a point of departure for our more detailed analysis, Table 19 compares the distribution of the experienced civilian labor force in each occupation and status group in 1960 and 1970, based on our adjusted data for the latter year. This comparison confirms the pattern of occupational "upgrading" suggested by the preceding inspection of occupational trends based on the summary CPS statistics for the broad Census occupational groups. Thus, the most rapid growth in the labor force over the decade occurred in the two highest occupational status groups. The experienced civilian labor force in Group I, which includes the professional and technical occupations, increased by nearly 44%, and the labor force in Group II, which includes most of the other white collar occupations, by 25%. Status Groups III and IV, which include the skilled or semi-skilled blue collar and service occupations, grew at a lower-than-average rate -- about 8% and 9%, respectively -- while the labor force in Group V, which includes most of the laborers and the lowest status personal service occupations, experienced the smallest net growth over the decade -- less than 2%. As a result, the proportion of the labor force in the Group V occupations declined from 12.7% in 1960 to 11.1% in 1970. (It should be noted that new workers as well as workers whose specific occupations were not reported in the Censuses have been excluded from the labor force totals on which these percentages are based and from subsequent tables.)

Within each of these occupational status groups, trends for specific occupations varied considerably from the group averages. Thus, within Group II, the most rapid growth occurred among office clerical occupations, such as

Table 19

Distribution of Experienced Civilian Labor Force by Status Group and Occupation: 1960, 1970*

Status Group and Occupation	Number (000)		Percent Change	Percent Distributions	
	1960	1970	1960-1970	1960	1970
TOTAL EXPERIENCED CIVILIAN LABOR FORCE	64,372	75,114	16.7	100.0	100.0
GROUP I, TOTAL	7,398	10,641	43.8	11.5	14.2
Engineers	825	1,187	43.9	1.3	1.6
Teachers, Excluding College	1,746	2,773	58.8	2.7	3.7
Medical Personnel a/	1,309	1,695	29.5	2.0	2.3
Other Professional and Technical Workers b/	3,518	4,986	41.7	5.5	6.6
GROUP II, TOTAL	19,813	24,711	24.7	30.8	32.9
Managers, Officials and Proprietors, Non-Farm	5,389	6,418	19.1	8.4	8.5
Clerical, Total	9,211	12,526	36.0	14.3	16.7
Bookkeepers	970	1,570	61.9	1.5	2.1
Secretaries, Stenographers and Typists	2,262	3,536	56.3	3.5	4.7
Office Machine Operators	309	590	90.9	0.5	0.8
Telephone Operators	363	418	15.2	0.6	0.6
Cashiers	482	861	78.6	0.7	1.1
Postal Clerks, Mail Carriers	399	578	44.9	0.6	0.8
Other Clerical, n.e.c. c/	4,426	4,973	12.4	6.9	6.6
Sales, Total	4,754	5,207	9.5	7.4	6.9
Sales Clerks, Retail Trade	2,342	2,380	1.6	3.6	3.2
All Other Sales Workers, Excluding Retail Clerks	2,412	2,827	17.2	3.7	3.7
Policemen, Firemen, etc. d/	459	560	22.0	0.7	0.7
GROUP III, TOTAL	14,548	15,687	7.8	22.6	20.9
Craftsmen and Foremen, Total	7,939	9,030	13.7	12.3	12.0
Foremen, n.e.c.	1,197	1,471	22.9	1.9	2.0
Mechanics, Excluding Auto	1,604	1,991	24.1	2.5	2.6
Machinists	489	522	6.7	0.8	0.7
Metal Working Crafts, Excluding Mechanics, Machinists	604	586	-3.0	0.9	0.8
Carpenters	946	888	-6.1	1.5	1.2
Electricians, Brickmasons, Excavating Operators, etc. e/	1,198	1,419	18.4	1.9	1.9
All Other Craftsmen, n.e.c. f/	1,901	2,153	13.3	2.9	2.9
Farmers, Farm Managers, and Unpaid Workers, Total	2,887	1,784	-38.2	4.6	2.4
Barbers, Bartenders, Practical Nurses, etc. g/	1,408	1,737	23.4	2.2	2.3
Operatives, Total	2,314	3,136	35.5	3.6	4.2
Deliverymen, Routemen	430	696	61.9	0.7	0.9
Checkers, Examiners and Inspectors	517	760	47.0	0.8	1.0
Operatives, Non-Durable Mfg., Incl. Chemicals, Petroleum, etc. h/	831	986	18.7	1.3	1.3
Operatives, Transport Equipment Manufacturing	536	694	29.5	0.8	0.9

Table 19

(continued)

Distribution of Experienced Civilian Labor Force by Status Group and Occupation: 1960, 1970*

Status Group and Occupation	Number (000)		Percent Change	Percent Distributions	
	1960	1970	1960-1970	1960	1970
GROUP IV, TOTAL	14,454	15,758	9.0	22.5	21.0
Craftsmen, Total	1,317	1,432	8.7	2.0	1.9
Auto Mechanics	733	858	17.1	1.1	1.1
Construction Painters, Plasterers, Cement and Concrete Finishers, Roofers, Paperhangers	584	574	-1.7	0.9	0.8
Transport Operatives, Total	2,496	2,483	-0.5	3.9	3.3
Truck and Tractor Drivers	1,712	1,534	-10.4	2.7	2.1
Auto Service and Parking Attendants	378	462	22.2	0.6	0.6
Taxi Drivers, Bus Drivers, etc. i/	406	487	20.0	0.6	0.6
Other Operatives, Total	7,637	8,322	9.0	11.9	11.1
Packers	483	609	26.1	0.8	0.8
Welders, Flamecutters	382	572	49.7	0.6	0.8
Operatives, Metal Working Industries j/	2,029	2,651	30.6	3.2	3.5
Operatives, Lumber, Furniture, Stone, Clay and Glass Industries	588	577	-1.8	0.9	0.8
Operatives, Food and Tobacco Industries	550	494	-10.2	0.9	0.7
Operatives, Textiles, Apparel and Leather Industries	1,827	1,690	-7.5	2.7	2.2
Operatives, Non-Manufacturing Industries	1,778	1,729	-2.8	2.8	2.3
Shipping and Receiving Clerks, Messengers and Office Boys	353	420	19.0	0.6	0.6
Services, Total	2,221	2,765	24.5	3.5	3.7
Guards, Watchmen, Crossing Guards and Bridge Tenders	250	322	28.8	0.4	0.4
Housekeepers and Babysitters	463	387	-16.4	0.7	0.5
Waiters, Counter and Fountain Workers	1,001	1,327	32.6	1.6	1.8
Hospital Attendants	507	729	43.8	0.7	0.9
Laborers, Metal Working Industries k/	430	336	-21.9	0.7	0.4
GROUP V, TOTAL	8,159	8,317	1.9	12.7	11.1
Non-Farm Laborers, Total	3,009	3,224	7.1	4.7	4.3
Laborers, Lumber, Furniture, Stone, Clay and Glass Industires	381	246	-35.4	0.6	0.3
Laborers, Non-Durable Manufacturing Industries	381	344	-9.7	0.6	0.5
Construction Laborers	783	676	-13.7	1.2	0.9
Laborers, Non-Manufacturing Industries, Except Construction	1,464	1,958	33.7	2.3	2.6
Farm Laborers - Paid	1,305	985	-24.5	2.0	1.3
Personal Services, Total	2,558	3,621	41.6	4.0	4.4
Cooks	607	875	44.2	0.9	1.2
Kitchen Workers	320	459	43.4	0.5	0.6
Janitors and Sextons	634	966	52.4	1.0	1.3
Cleaners, Charwomen, Porters, Chambermaids and Elevator Operators	590	596	1.0	0.9	0.8
Laundry and Dry Cleaning Operatives	407	365	-10.3	0.6	0.5
Private Household, n.e.c.	1,207	847	-34.2	2.0	1.1

Footnotes

Table 19

Sources: 1960--U.S. Census of Population, recoded 1/1000 Public Use Sample Tape, released July, 1971. 1970--U.S. Census of Population, 1/1000 Public Use Sample Tape, state version, with 5% sample items.

* The occupational totals and status group subtotals for the experienced civilian labor force in 1960 and 1970 in this and subsequent tables exclude workers who were identified as "occupation not reported" in the 1960 Census and who were allocated to a major Census occupation group, but not to a specific occupation, in 1970. In 1960, the occupation not reported category was 3.2 million or 4.8% of the experienced civilian labor force total of 67.6 million. In 1970, 4.9 million, or 6.1% of the experienced civilian labor force total of 80.0 million consisted of allocated entries.

a/ Includes physicians, dentists, medical and dental technicians, and all other health occupations classified as professional.

b/ Includes all other professional and technical workers, not elsewhere classified.

c/ Includes all other clerical and kindred workers, not elsewhere classified, except shipping and receiving clerks, messengers and office boys.

d/ Includes policemen, firemen, marshals and constables, sheriffs and bailiffs.

e/ Includes electricians, brickmasons, excavating, grading, and road machinery operators, plumbers and pipefitters, and structural metalworkers.

f/ Includes all other craftsmen and foremen, not elsewhere classified, except those in Status Group IV.

g/ Includes barbers, bartenders, practical nurses, attendants, recreation and amusement, ushers, and all other service workers not elsewhere classified.

h/ Includes operatives not elsewhere classified in the following non-durable goods industries: paper and allied products, printing and publishing, chemicals and allied products, petroleum and coal products, rubber and plastic products, not specified non-durable manufacturing.

i/ Includes taxi drivers, bus drivers, rail conductors, subway motormen, mine motormen, railroad brakemen, railroad switchmen, boatmen and canalmen, and sailors and deckhands.

j/ Includes operatives, not elsewhere classified, in the following industries: metal industries, machinery, except electrical, electrical machinery, professional and photographic equipment, miscellaneous manufacturing.

k/ Same industrial distribution as for operatives in footnote j.

secretaries, bookkeepers and office machine operators, and among cashiers, while the number of retail sales clerks experienced virtually no net change over the decade. Within Group III, certain of the higher status operative occupations as well as the service occupations in this group (such as practical nurses and cosmetologists) experienced a more rapid growth than the skilled crafts, while the number of farmers, farm managers and family workers declined sharply. Among the Group IV occupations, service worker occupations such as hospital attendants, waiters and guards, and operatives in metalworking industries, grew at an above average rate in contrast to declines for truck drivers and among operatives in non-durable goods manufacturing industries, such as textiles, apparel and leather products.

The trends for the "low level" occupations within Group V indicate a particularly wide divergence. Relatively sharp increases occurred among cooks and kitchen workers, among janitors and among non-farm laborers in industries such as trade, services and government. In contrast, the number of paid farm laborers and domestics declined sharply, continuing the long-term declining trends in these occupations. Laborers in both manufacturing and construction also declined significantly.

The occupational trends described above reflect the combined impacts of: (1) differential rates of growth in output in the various industries and sectors of the economy, (2) differential rates of productivity growth and related technological changes affecting occupational staffing patterns in specific industries, (3) sizable changes in man-hours per worker, in some occupations and industries, and (4) shifts in relative availability of labor in the various

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occupations. Although a detailed analysis of these and other relevant variables is beyond the scope of the present report, certain broad patterns should be noted.

First, the sharpest relative growth occurred, generally, in those occupations related to service-producing, rather than goods-producing, industries. Thus, in Group V occupations, increases were limited to personal service occupations, other than domestics, and to laborer occupations in the service producing industries in contrast to declines in the laborer work force in both the farm and in the non-farm industrial sectors. These trends are associated with the long-term relative growth in the share of national output of service-producing industries, as well as the relatively slow productivity growth in this sector.

Secondly, it appears probable that the rate of growth or decline of particular occupations was also influenced by specific labor supply conditions during the decade of the 1960's. Thus, the rapid growth of professional occupations, although reflecting a sharp growth in demand for their services (e.g., education, health, research and development) would probably not have been possible if not for the large increase in the number of college graduates in the closing years of the decade. Conversely, as noted earlier, the rate of decline in farm employment and in domestic service workers was accelerated during the second half of the decade, concurrent with the sharp expansion of alternative (and better paying) job opportunities in the non-farm sector and must be attributed, in part, to a reduced labor supply for these low status, low wage jobs.[3]

D. Occupational Distributions by Socio-Demographic Groups

In the preceding sections of this chapter we have reviewed, first, the major changes in the socio-demographic composition of the civilian labor force, as a whole, during the 1960's and then, the changes in occupational distribution of the labor force. The interaction of these two sets of influences, in turn, is reflected in the changes in occupational distribution for each major demographic component of the labor force over the decade. These distributions by occupational status group are shown in Tables 20 - 28 for men and women, by race, by educational attainment and by broad age group.

Trends by Education Level -- An initial comparison of the shifts in status group distribution for the total experienced civilian labor force, with the corresponding changes for each separate educational attainment group of the labor force, in the upper panel of Table 20, reveals a striking contrast The overall proportion of experienced civilian workers in Groups I and II, combined, rose from 42.3% in 1960, to 47.0% in 1970, with corresponding reductions in each of the three lower status groups. Yet, when the trend for each educational attainment group is examined separately, we find that the proportion of workers in the upper status groups, was reduced for each education-specific group, with corresponding increases in their proportions in Groups III, IV and V. To illustrate, among high school dropouts of both sexes (those with 9 to 11 years of school completed), the proportion of workers in Groups I and II, combined, declined from 28.7% to 25.5% between 1960 and 1970, while their proportion in Groups IV and V rose from 45.1% to 48.5%. This pattern of occupational downgrading is evident in each educational attainment group

Table 20

Percent Distribution by Occupational Status Group for Each Education Level, Sex, Race and Age Group of the Experienced Civilian Labor Force: 1960 and 1970

Total, Both Sexes, 16 Years and Over

Occupational Group	Total		Years of School Completed							
			Less than 9		9 - 11		12		13 and Over	
	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970
TOTAL, ALL RACES										
Number (000)	64372	75114	18219	12195	13541	14479	18752	27275	13860	21165
Percent Distribution:										
Group 1	11.5	14.2	1.2	1.4	2.6	2.5	6.3	6.6	40.7	39.3
Group 2	30.8	32.8	13.0	11.8	26.1	23.0	44.8	41.9	39.7	40.2
Group 3	22.6	20.9	28.8	27.1	26.2	26.0	22.8	23.5	10.7	10.5
Group 4	22.5	21.0	32.2	34.6	30.7	32.2	19.0	20.2	6.3	6.4
Group 5	12.6	11.1	24.8	25.1	14.4	16.3	7.1	7.8	2.6	3.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
WHITE TOTAL										
Number (000)	57654	67117	14953	9979	12082	12486	17503	24869	13116	19783
Percent Distribution:										
Group 1	12.2	14.8	1.3	1.4	2.7	2.6	6.5	6.8	40.9	39.3
Group 2	33.2	34.6	15.2	13.2	28.4	25.0	46.6	43.3	40.2	40.6
Group 3	23.5	21.5	31.9	29.7	27.4	27.4	23.2	23.9	10.8	10.5
Group 4	22.1	20.2	33.6	36.0	31.0	31.8	18.3	19.2	6.0	6.2
Group 5	9.0	8.9	18.0	19.7	10.5	13.2	5.4	6.8	2.1	3.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NONWHITE TOTAL										
Number (000)	6718	7997	3266	2214	1459	1993	1249	2408	744	1382
Percent Distribution:										
Group 1	5.6	9.1	.7	1.2	1.5	2.1	3.8	4.9	37.8	39.1
Group 2	10.1	18.2	3.2	5.4	6.9	10.2	20.1	27.5	29.8	34.3
Group 3	14.7	15.8	14.9	15.1	15.7	17.4	16.1	18.4	9.5	10.3
Group 4	25.3	27.5	25.4	29.0	29.3	34.5	28.0	30.3	12.4	10.1
Group 5	44.3	29.4	55.8	49.3	46.6	35.8	32.0	18.9	10.5	6.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 21

Percent Distribution by Occupational Status Group for Each Education Level, Sex, Race and Age Group of the Experienced Civilian Labor Force: 1960 and 1970

Male Workers, 16 Years and Over

Occupational Group	Total		Years of School Completed							
			Less than 9		9 - 11		12		13 and Over	
	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970
TOTAL, ALL RACES										
Number (000)	43406	47010	13509	8566	9217	9241	11326	15451	9354	13752
Percent Distribution:										
Group 1	10.5	13.3	1.0	1.2	2.4	2.2	6.2	6.2	37.3	36.5
Group 2	25.1	25.7	11.8	10.2	21.0	17.4	32.5	28.1	39.3	38.4
Group 3	29.2	27.9	34.4	33.1	33.1	33.5	32.3	34.0	14.0	13.6
Group 4	22.8	21.5	30.7	32.7	29.7	31.0	21.3	22.4	6.5	7.0
Group 5	12.4	11.6	22.1	22.8	13.8	15.9	7.7	9.3	2.9	4.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
WHITE TOTAL										
Number (000)	39323	42514	11352	7113	8350	8140	10661	14226	8960	13035
Percent Distribution:										
Group 1	11.1	14.0	1.1	1.3	2.5	2.3	6.5	6.4	37.5	36.6
Group 2	26.8	27.0	13.4	11.1	22.4	18.6	33.4	29.0	39.9	38.9
Group 3	30.2	28.5	37.2	35.8	34.5	34.9	32.9	34.7	14.0	13.6
Group 4	22.2	20.5	31.0	32.9	29.4	30.1	20.7	21.5	6.2	6.6
Group 5	9.7	10.0	17.3	18.9	11.2	14.1	6.5	8.4	2.4	4.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NONWHITE TOTAL										
Number (000	4083	4496	2157	1453	867	1101	665	1225	394	717
Percent Distribution:										
Group 1	4.2	7.4	.7	.9	1.5	1.3	2.4	3.5	32.8	36.5
Group 2	8.5	13.5	3.3	5.9	6.6	8.0	16.5	18.1	27.4	29.4
Group 3	19.2	21.3	19.0	19.5	20.2	24.3	22.0	25.6	13.2	13.2
Group 4	29.1	30.5	29.4	31.8	33.0	37.2	31.7	33.3	14.2	13.4
Group 5	39.0	27.3	47.6	41.9	38.7	29.2	27.4	19.5	12.4	7.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 22

Percent Distribution by Occupational Status Group for Each Education Level, Sex, Race and Age Group of the Experienced Civilian Labor Force: 1960 and 1970

Female Workers, 16 Years and Over

Occupational Group	Total		Years of School Completed							
			Less than 9		9 - 11		12		13 and Over	
	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970
TOTAL, ALL RACES										
Number (000)	20966	28104	4710	3627	4324	5238	7426	11826	4506	7413
Percent Distribution:										
Group 1	13.6	15.5	1.6	1.7	3.1	3.1	6.5	7.1	48.0	44.3
Group 2	42.5	44.9	16.7	15.5	37.0	32.9	63.8	59.9	40.2	43.7
Group 3	9.0	9.3	13.0	12.9	11.2	12.7	8.2	9.7	3.9	4.7
Group 4	21.7	20.2	36.2	39.3	33.0	34.3	15.3	17.3	5.9	5.4
Group 5	13.2	10.1	32.5	30.6	15.7	17.0	6.2	6.0	2.0	1.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
WHITE TOTAL										
Number (000)	18331	24603	3601	2866	3732	4346	6842	10643	4156	6748
Percent Distribution:										
Group 1	14.5	16.1	1.8	1.7	3.4	3.1	6.6	7.2	48.3	44.5
Group 2	46.9	47.8	20.9	18.5	41.7	37.1	67.1	62.5	40.9	44.1
Group 3	9.1	9.4	14.8	14.5	11.5	13.4	8.1	9.5	3.8	4.5
Group 4	22.0	19.7	42.1	43.5	34.4	35.0	14.6	16.2	5.5	5.3
Group 5	7.5	7.0	20.4	21.8	9.0	11.4	3.6	4.6	1.5	1.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NONWHITE TOTAL										
Number (000)	2635	3501	1109	761	592	892	584	1183	350	665
Percent Distribution:										
Group 1	7.6	11.3	.8	1.7	1.5	3.0	5.3	6.4	43.4	42.1
Group 2	12.6	24.4	3.0	4.3	7.3	12.9	24.1	37.3	32.6	39.5
Group 3	7.8	8.7	6.9	6.7	9.1	8.9	9.4	10.9	5.4	7.1
Group 4	19.4	23.4	17.5	23.5	24.0	31.1	23.8	27.2	10.3	6.5
Group 5	52.6	32.2	71.8	63.8	58.1	44.1	37.4	18.2	8.3	4.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 23

Percent Distribution by Occupational Status Group for Each Education Level, Sex, Race and Age Group of the Experienced Civilian Labor Force: 1960 and 1970

Total, Both Sexes, Ages 16-24

Occupational Group	Total		Years of School Completed							
			Less than 9		9 - 11		12		13 and Over	
	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970
TOTAL, ALL RACES										
Number (000)	9712	14789	995	633	2503	2825	4152	6454	2062	4977
Percent Distribution:										
Group 1	8.1	10.6	1.0	1.9	1.3	1.5	4.3	4.1	27.2	25.7
Group 2	33.4	34.7	5.5	5.2	20.2	18.1	43.9	40.4	41.2	40.3
Group 3	15.4	15.4	18.0	19.3	17.3	15.9	15.9	18.1	10.9	11.0
Group 4	26.5	23.4	37.5	40.0	36.5	35.9	24.3	24.4	13.7	12.8
Group 5	16.6	15.9	38.0	33.6	24.7	28.6	11.6	13.0	7.0	10.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
WHITE TOTAL										
Number (000)	8657	13175	728	519	2168	2381	3804	5730	1957	4545
Percent Distribution:										
Group 1	8.7	11.2	1.0	2.3	1.4	1.6	4.5	4.3	27.6	26.0
Group 2	36.0	35.3	7.0	5.4	22.5	19.4	46.4	41.0	41.6	40.2
Group 3	15.6	15.8	18.4	21.2	17.7	16.4	16.2	18.8	11.0	11.0
Group 4	26.5	22.7	41.3	40.8	38.3	35.8	23.6	23.6	13.4	12.5
Group 5	13.2	15.0	32.3	30.3	20.1	26.8	9.3	12.3	6.4	10.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NONWHITE TOTAL										
Number (000)	1055	1614	267	114	335	444	348	724	105	332
Percent Distribution:										
Group 1	2.9	5.9	1.1	---	0.9	1.4	1.1	2,9	20.0	20.8
Group 2	11.7	27.8	1,5	4.4	5.4	11.5	18.4	34.4	35.3	43.1
Group 3	13.9	12.4	16.9	10.5	14.9	13.1	12.6	13.3	7.6	10.2
Group 4	26.7	29.9	27.0	36.0	24.2	36.0	31.6	31.4	18.1	16.3
Group 5	44.8	24.0	53.5	49.1	54.6	38.0	36.3	18.0	19.0	9.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 24

Percent Distribution by Occupational Status Group for Each Education Level, Sex, Race, and Age Group of the Experienced Civilian Labor Force: 1960 and 1970

Male Workers, Ages 16-24

Occupational Group	Total		Years of School Completed							
			Less than 9		9 - 11		12		13 and Over	
	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970
TOTAL, ALL RACES										
Number (000)	5840	8081	777	424	1697	1846	2196	3211	1170	2600
Percent Distribution:										
Group 1	7.0	9.3	0.8	1.2	1.3	1.1	4.3	3.9	24.6	23.0
Group 2	20.5	19.3	4.6	2.8	14.7	10.6	23.4	19.2	33.8	28.6
Group 3	21.5	20.8	21.2	20.0	21.7	19.6	24.4	25.7	16.2	15.8
Group 4	29.1	26.5	34.4	37.0	33.6	33.2	31.1	29.6	15.1	15.8
Group 5	21.9	24.1	39.0	39.0	28.7	35.5	16.8	21.6	10.3	16.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
WHITE TOTAL										
Number (000)	5191	7231	579	350	1480	1573	2012	2850	1120	2458
Percent Distribution:										
Group 1	7.7	9.5	1.0	1.4	1.4	1.1	4.6	4.0	24.8	23.0
Group 2	22.1	19.6	5.7	3.1	16.4	11.4	24.3	19.0	34.3	28.5
Group 3	22.1	21.7	22.3	22.0	22.4	20.2	25.0	26.6	16.3	16.1
Group 4	29.2	25.9	36.8	37.8	34.8	32.5	31.1	29.1	14.9	15.5
Group 5	18.9	23.3	34.2	35.7	25.0	34.8	15.0	21.3	9.7	16.9
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NONWHITE TOTAL										
Number (000)	649	850	198	74	217	273	184	361	50	142
Percent Distribution:										
Group 1	2.0	5.3	---	---	0.5	1.1	1.1	2.8	20.0	23.2
Group 2	7.4	15.5	1.5	1.4	3.2	5.5	14.1	20.8	24.0	28.2
Group 3	17.1	15.9	18.2	10.8	16.6	16.5	17.9	18.6	12.0	12.0
Group 4	27.0	34.7	27.3	33.7	25.8	36.6	29.9	34.3	20.0	21.8
Group 5	46.5	28.6	53.0	54.1	53.9	40.3	37.0	23.5	24.0	14.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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Table 25

Percent Distribution by Occupational Status Group for Each Education Level, Sex, Race and Age Group of the Experienced Civilian Labor Force: 1960 and 1970

Female Workers, Ages 16-24

Occupational Group	Total		Years of School Completed							
			Less than 9		9 - 11		12		13 and Over	
	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970
TOTAL, ALL RACES										
Number (000)	3972	6708	218	209	806	979	1956	3243	892	2277
Percent Distribution:										
Group 1	9.6	12.2	1.8	3.3	1.4	2.3	4.2	4.4	30.6	28.6
Group 2	52.9	53.0	8.7	10.0	31.9	32.4	67.1	61.1	51.0	54.0
Group 3	6.2	8.8	6.4	17.7	8.1	8.9	6.3	10.7	3.9	5.4
Group 4	22.7	20.0	48.7	46.0	42.3	41.1	16.7	19.3	11.8	9.3
Group 5	8.6	6.0	34.4	23.0	16.3	15.3	5.7	4.5	2.7	2.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
WHITE TOTAL										
Number (000)	3466	5944	149	169	688	808	1792	2880	837	2087
Percent Distribution:										
Group 1	10.2	13.4	0.7	4.1	1.3	2.5	4.5	4.8	31.3	29.5
Group 2	57.0	54.8	12.1	10.1	35.8	34.8	71.1	62.9	51.4	54.0
Group 3	5.8	8.0	3.4	19.5	7.4	9.2	6.3	10.1	3.9	5.1
Group 4	22.3	19.6	59.0	47.4	46.1	42.2	15.1	19.0	11.5	9.0
Group 5	4.7	4.2	24.8	18.9	9.4	11.3	3.0	3.2	1.9	2.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NONWHITE TOTAL										
Number (000)	406	764	69	40	118	171	164	363	55	190
Percent Distribution:										
Group 1	4.4	6.5	4.3	---	1.7	1.8	1.2	3.0	20.0	18.9
Group 2	18.5	41.7	1.4	10.0	9.3	21.1	23.2	48.2	45.5	54.3
Group 3	8.9	8.2	13.0	10.0	11.9	7.6	6.7	8.0	3.6	8.9
Group 4	26.4	17.1	26.1	40.0	21.2	35.1	33.5	28.4	16.4	12.1
Group 5	41.8	26.5	55.2	40.0	55.9	34.4	35.4	12.4	14.5	5.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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Table 26

Percent Distribution by Occupational Status Group for Each Education Level, Sex, Race and Age Group of the Experienced Civilian Labor Force: 1960 and 1970

Total, Both Sexes, 25 Years and Over

Occupational Group	Total		Years of School Completed							
			Less than 9		9 - 11		12		13 and Over	
	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970
TOTAL, ALL RACES										
Number (000)	54660	60325	17224	11560	11038	11654	14600	20823	11798	16288
Percent Distribution:										
Group 1	12.1	15.0	1.2	1.3	2.9	2.7	6.9	7.4	43.1	43.4
Group 2	30.3	32.4	13.5	12.2	27.4	24.2	45.1	42.4	39.4	40.2
Group 3	23.9	22.3	29.5	27.5	28.2	28.5	24.7	25.1	10.7	10.3
Group 4	21.7	20.4	31.8	34.4	29.5	31.3	17.4	18.9	5.0	4.5
Group 5	12.0	9.9	24.0	24.6	12.0	13.3	5.9	6.2	1.8	1.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
WHITE TOTAL										
Number (000)	48997	53942	14225	9460	9214	10105	13699	19139	11159	15238
Percent Distribution:										
Group 1	12.8	15.6	1.3	1.4	3.0	2.8	7.1	7.5	43.2	43.3
Group 2	32.8	34.4	15.6	13.7	29.7	26.4	46.7	44.0	40.0	40.8
Group 3	24.9	22.9	32.6	30.2	29.6	30.0	25.2	25.5	10.7	10.3
Group 4	21.3	19.7	33.2	35.6	29.3	30.8	16.8	17.9	4.7	4.3
Group 5	8.2	7.4	17.3	19.1	8.4	10.0	4.2	5.1	1.4	1.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NONWHITE TOTAL										
Number (000)	5663	6383	2999	2100	1124	1549	901	1684	639	1050
Percent Distribution:										
Group 1	6.1	9.9	0.7	1.2	1.7	2.3	4.8	5.8	40.6	45.0
Group 2	9.8	15.8	3.4	5.4	7.3	9.8	20.8	24.5	29.0	31.5
Group 3	14.8	16.7	14.7	15.3	15.9	18.6	17.4	20.6	9.9	10.3
Group 4	25.0	26.9	25.2	28.6	30.9	34.0	26.6	29.9	11.4	8.1
Group 5	44.3	30.7	56.0	40.5	44.2	35.3	30.4	19.2	9.1	5.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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Table 27

Percent Distribution by Occupational Status Group for Each Education Level, Sex, Race and Age Group of the Experienced Civilian Labor Force: 1960 and 1970

Male Workers, 25 Years and Over

Occupational Group	Total		Years of School Completed							
			Less than 9		9 - 11		12		13 and Over	
	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970
TOTAL, ALL RACES										
Number (000)	37566	38929	12731	8142	7520	7395	9131	12240	8184	11152
Percent Distribution:										
Group 1	11.0	14.2	1.0	1.2	2.6	2.4	6.7	6.8	39.1	39.7
Group 2	25.8	27.1	12.2	10.6	22.4	19.1	34.6	30.4	40.1	40.7
Group 3	30.3	29.3	35.2	33.9	35.7	37.1	34.2	36.3	13.7	13.1
Group 4	21.9	20.4	30.5	32.4	28.9	30.4	19.0	20.5	5.3	4.9
Group 5	11.0	9.0	21.1	21.9	10.4	11.0	5.5	6.0	1.8	1.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
WHITE TOTAL										
Number (000)	34132	35283	10773	6763	6870	6567	8649	11376	7840	10577
Percent Distribution:										
Group 1	11.7	14.9	1.1	1.3	2.7	2.6	6.9	7.0	39.3	39.7
Group 2	27.5	28.5	13.8	11.5	23.8	20.3	35.6	31.4	40.7	41.3
Group 3	31.4	30.0	38.1	36.6	37.1	38.4	34.8	36.8	13.7	13.0
Group 4	21.1	19.4	30.7	32.6	28.2	29.5	18.2	19.6	4.9	4.6
Group 5	8.3	7.2	16.3	18.0	8.2	9.2	4.5	5.2	1.4	1.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NONWHITE TOTAL										
Number (000)	3434	3646	1958	1379	650	828	482	864	344	575
Percent Distribution:										
Group 1	4.7	7.8	.8	.9	1.8	1.3	2.9	3.8	34.5	39.7
Group 2	8.7	13.1	3.5	6.2	7.7	8.8	17.4	17.0	27.9	29.7
Group 3	19.5	22.5	19.1	19.9	21.4	26.8	23.4	28.6	13.4	13.6
Group 4	29.5	30.1	29.6	31.7	35.4	37.5	32.6	32.8	13.4	11.3
Group 5	37.6	26.5	47.0	41.3	33.7	25.6	23.7	17.8	10.8	5.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 28

Percent Distribution by Occupational Status Group for Each EducationalLevel, Sex, Race and Age Group of the Experienced Civilian Labor Force: 1960 and 1970

Female Workers, 25 Years and Over

Occupational Group	Total		Years of School Completed							
			Less than 9		9 - 11		12		13 and Over	
	1960	1970	1960	1970	1960	1970	1960	1970	1960	1970
TOTAL, ALL RACES										
Number (000)	17094	21396	4493	3418	3518	4259	5469	8583	3614	5136
Percent Distribution:										
Group 1	14.5	16.5	1.6	1.6	3.5	3.2	7.3	8.2	52.1	51.3
Group 2	40.3	42.3	17.0	15.9	38.3	33.1	62.7	59.4	37.6	39.1
Group 3	9.6	9.5	13.3	12.6	11.9	13.5	8.8	9.3	3.9	4.4
Group 4	21.4	20.3	35.7	38.9	30.8	32.8	14.8	16.6	4.5	3.6
Group 5	14.2	11.4	32.4	31.0	15.5	17.4	6.4	6.5	1.9	1.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
WHITE TOTAL										
Number (000)	14865	18659	3452	[illegible]	3044	3538	5050	7763	3319	4661
Percent Distribution:										
Group 1	15.4	17.0	1.9	1.6	3.8	3.2	7.3	8.2	52.6	51.2
Group 2	44.7	45.7	21.3	19.0	43.2	37.6	65.8	62.3	38.2	39.7
Group 3	9.9	9.6	15.3	14.2	12.5	14.4	8.7	9.0	3.8	4.2
Group 4	21.9	19.9	41.3	43.2	31.7	33.3	14.4	15.5	4.0	3.6
Group 5	8.1	7.8	20.2	22.0	8.8	11.5	3.8	5.0	1.4	1.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NONWHITE TOTAL										
Number (000)	2229	2737	1041	721	474	721	419	820	295	475
Percent Distribution:										
Group 1	8.2	12.6	.6	1.8	1.5	3.3	6.9	7.9	47.7	51.4
Group 2	11.5	19.5	3.1	4.0	6.8	11.0	24.6	32.5	30.2	33.7
Group 3	7.6	8.9	6.5	6.5	8.4	9.2	10.5	12.2	5.8	6.3
Group 4	18.1	22.6	17.0	22.6	24.7	30.1	19.8	26.7	9.2	4.2
Group 5	54.6	36.4	72.8	65.1	58.6	46.4	38.2	20.7	7.1	4.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

for both men and women (all races), and is mirrored in more pronounced form in the separate statistics for white workers of both sexes.

The explanation lies, of course, in the sharp increase in educational attainment of workers during the course of the decade. Between 1960 and 1970, the percentage of workers in the experienced civilian labor force with 12 years of education rose from 51% to 65%, and the percentage with one or more years of college, (i.e., 13 or more years schooling) rose from 22% to 28%.

As had been true in preceding decades, this rapid educational upgrading of the labor force exceeded the rate of growth of the higher status, white collar occupations, in which most workers with these levels of education had been concentrated in earlier decades. As a result, an increasing percentage of workers with a high school diploma, or even with some college education, found employment in blue collar or service occupations.

Whites vs. Non-Whites -- The decade of the 1960's, as we have already observed from our initial examination of summary CPS data, was marked by a significant "take-off" in terms of occupational upgrading of Negro workers. This is further verified by the shift in occupational status distribution of non-whites, as compared to that of white workers. The proportion of non-white workers in Group V declined from 44.3% in 1960 to 29.4% in 1970 -- a reduction of fully one-third. The sharpest relative gains for non-whites were recorded in Group I and II occupations, where their proportion rose from 15.7% in 1960 to 27.3% in 1970, with much smaller gains in Group III and IV. The advance of non-whites into the white collar occupations was most pronounced for those with 12 or more years of schooling; among non-whites with less schooling, the greatest net movement was from Group V jobs to the semi-skilled, Group IV category of occupations. Unlike the pattern for white workers, upward shifts in occupational status distribution were achieved by non-whites within each specific educational attainment category. Thus, among non-whites with 12 years of education, the percentage in Groups I and II rose from 23.9% in 1960 to 32.4% in 1970, whereas among white workers with 12 years of education, the percentage in Groups I and II fell from 53.1% in 1960 to 50.1% in 1970.

Men vs. Women -- A comparison of the statistics on occupational status distribution for men and women of each race, appearing in Tables 21 and 22, reveals some expected differences in their distribution among the five broad occupational groups. Women -- and particularly non-white women -- have tended to be differentially concentrated at both extremes of the occupational spectrum. A relatively higher proportion of women workers with 12 or more years of schooling than men with similar education are found in the Group I and II (white collar) occupations, while a larger proportion of women workers with less than a high school education are found in the Group V occupations (typically in personal service activities). On the other hand, a larger relative proportion of men, at all educational levels, are found in the intermediate Group III and Group IV occupations.

The pattern of shifts in occupational status distribution over the decade was however generally similar for men and women of each race. Among the non-whites, the better educated women workers -- those with at least 12 years of schooling -- were among the most prominent beneficiaries of the improved job climate of the 1960's. In 1960, 37.4% of non-white women with 12 years of schooling -- nearly two out of five -- had still been attached to the lowest status jobs, working as domestics, cooks, kitchen or cleaning service workers, in laundries or in various laborer jobs. The proportion of non-white women in such jobs was more than 10 times as great as among white women with similar levels of education. By 1970, the proportion of non-white women high school graduates in Group V occupations had declined by more than one-half, to 18.2%, while the corresponding percentage for white women high school graduates had edged up from 3.6% in 1960 to 4.6% in 1970.

The above comparison also provides one initial indication of the magnitude of the occupational status gap still remaining between Negroes and whites with similar periods of schooling. In 1970, the percentages of non-whites in Group V occupations still exceeded the corresponding percentages of white workers in each sex and educational attainment group by ratios ranging from about 4½:1, in the case of non-white women with 12 years of schooling, to less than 2:1, for non-white men with 13 or more years of education.

Age Group Comparisons -- Thus far, we have examined shifts in occupational status distributions of workers for all age groups combined. It would be reasonable to expect that the rate of change in occupational distributions in response to a changing labor market environment would be most pronounced for younger workers who, because of greater mobility, tend to be more responsive to shifts in the employment climate than do more mature workers. The data appearing in Tables 23 to 28 generally confirm this assumption. Among non-white workers, the degree of improvement in occupational status distribution over the decade was much more rapid for younger workers, aged 16-24 years, than for those 25 years and over; whereas the overall proportion of the latter in Group V declined from 44.3% in 1960 to 30.7% in 1970, or by 13.6 percentage points, the corresponding reduction for non-whites aged 16-24 years was from 44.8% to 24.0%, or by 20.8 percentage points. This pattern, of a higher rate of reduction in participation in Group V jobs for younger non-whites than for non-white adults, is generally evident in the separate trends for each of the sex and educational attainment subgroups.

Conversely, the data for white workers indicate significantly greater increases in the percentages of younger workers, aged 16-24 years, in Group V occupations than among adult workers, 25 years and over. Thus, whereas the percentage of white youths with 9-11 years of school in Group V occupations rose from 20.1% to 26.8% between 1960 and 1970, the increase for the corresponding group of adult workers, 25 years and over, was only from 8.4% to 10.0%. Moreover, as shown in Tables 23 and 24, the percentage point increases in participation in Group V occupations between 1960 and 1970 were largest for white males with 13 or more years of education.

E. Occupational Status Indices

The occupational status index, as noted in Chapter II, is an average of our occupational percentile (or status) scores for each occupation (as shown in Table 12), weighted by the number of workers in a specified population group who are attached to that occupation. This index, thus, provides a useful summary measure of the relative occupational standings of different population groups and their changes over time. Occupational status indexes have been computed for all white and non-white workers, and for each of the major socio-demographic groups, based on the detailed distributions of workers among the full range of the 57 occupations used in this study.

White-Non-White Status Differential -- Our analysis of trends between 1910 and 1960, in Chapter II, had indicated that non-whites had made limited progress in improving their overall occupational status during this half century and had made no net progress at all, relative to white workers. The mass movement of Negro workers from farm to city and from the South to the North had, in large part, resulted in their shift from low status and very low income jobs on the farm to similarly low status, and only slightly better paying jobs, in the city. Their penetration into the higher status white collar and skilled craft occupations, as well as into some of the more desirable operative occupations, was still very limited, although some progress in this direction had been achieved during World War II and the decade of the 1950's. Thus, as of 1960, the occupational status index of non-whites, based on their distribution among the 57 occupations used in our analysis of 1960-70 trends, stood at 25.1, or only slightly more than one-half of the corresponding index for white workers. Between 1960 and 1970, however, the non-white index increased by more than one-third to 34.0, as compared to an increase of only 2.3 points, to 51.3, for white workers. As a result, the relative occupational standing of the non-white labor force in 1970 was 66.3%, or nearly two-thirds that of white workers. (Table 29.)

Status Trends by Educational Level -- It will be apparent from Table 30, that in the case of white workers, the overall growth in employment opportunities in higher status occupations did not keep pace with the increase in their educational attainment. Hence -- with limited exceptions -- the occupational

Table 29

Occupational Status Indices for White and Nonwhite Workers: 1910, 1950, 1960, 1970

Year	Status Index a/		Ratio of Non-White to White Index
	White	Non-White	
1950 COMPARABLE OCCUPATIONS b/			
1910	36.2	19.0	52.5
1950	44.6	22.1	49.6
1960	47.8	25.2	52.7
1960/70 COMPARABLE c/ OCCUPATIONS			
1960	49.0	25.1	51.2
1970	51.3	34.0	66.3

a/ Except as otherwise noted, the status indexes for each group were derived as the average of the percentile status scores for each occupation, as shown in the first column of Table 3, weighted by the number of workers in each occupation.

b/ Based on occupational distributions of white and non-white workers among 42 occupational subgroups, comparable to 1950 Census occupational classificiations, as shown in Table 8. Occupational status percentile scores, based on the more detailed 1960/70 occupational clusters were reweighted, where necessary, to correspond to the coverage of the 1950 occupational groups. For this historical series, Otis Duncan's 1950 Socioeconomic Status scores were used for farmers and farm managers, unpaid family workers and paid farm workers.

c/ Based on occupational distributions of white and non-white workers in the experienced civilian labor force, 16 years and over, classified in accordance with the 57 "1960-70 comparable" occupations used in the current study.

status of white workers with given levels of educational attainment declined between 1960 and 1970, whereas the overall status index for white workers increased moderately.

In the case of non-whites, on the other hand, significant improvements in occupational status were achieved by all educational attainment groups. Thus, the impressive overall gains in occupational status of the non-white labor force resulted from both a sharp increase in educational attainment and from upgrading of workers within each educational level group. We have estimated that approximately one-half of the overall improvement in the non-white occupational status index between 1960 and 1970 is associated with the increase in the educational level of the non-white labor force, and that the balance is a result of all those factors which contributed to upgrading of non-white workers within the same educational attainment groups. (We should emphasize, however, that it may well be erroneous to attribute the full improvement associated with increased schooling to the "human capital" benefits of education, per se, since increased education may in part, be a "proxy" for other personal characteristics relevant to labor market success.)

Age Group Comparisons -- The separate indices for workers aged 16-24 years (Table 31) provide some significant contrasts with the corresponding indexes for workers of all age groups (Table 30). A comparison of status indexes for each educational level indicates that, with some exceptions, younger workers have tended to start lower on the occupational ladder than the levels attained by older workers with similar educational background. In the case of white youth, the gap between their occupational status and that of

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Table 30

Occupational Status Indices for the Experienced Civilian Labor Force, by Race, Sex and Years of School Completed: 1960, 1970

Total, Ages 16 and Over

	Years of School Completed				
	Total	Less than 9	9 - 11	12	13 and Over
BOTH SEXES, TOTAL					
1960	46.5	30.1	38.3	50.8	70.1
1970	49.5	29.2	36.8	49.9	69.4
WHITE, TOTAL					
1960	49.0	32.9	40.5	52.3	70.6
1970	51.3	31.5	38.7	51.1	69.7
NONWHITE, TOTAL					
1960	25.1	17.1	20.1	30.9	60.1
1970	34.0	19.4	24.8	37.7	64.5
MALE, TOTAL					
1960	45.1	31.8	38.3	46.3	68.6
1970	47.6	30.8	35.5	45.7	67.6
WHITE MALE					
1960	47.1	34.0	39.9	48.2	69.2
1970	49.3	33.1	38.0	46.6	68.0
NONWHITE MALE					
1960	25.9	20.0	23.0	31.0	56.1
1970	33.1	22.2	26.8	34.9	61.8
FEMALE, TOTAL					
1960	49.2	25.3	38.3	56.4	72.8
1970	53.2	25.9	39.4	55.6	72.7
WHITE FEMALE					
1960	52.8	29.5	41.9	58.6	73.5
1970	55.8	29.1	42.6	57.3	73.2
NONWHITE FEMALE					
1960	23.9	11.5	16.0	30.8	64.6
1970	35.2	14.1	22.3	40.5	67.4

Note: The indices of occupational status are averages of the occupation status scores weighted by employment in each occupation. The derivation of the occupation status scores is discussed in Chapter I.

Table 31

Occupational Status Indices for the Experienced Civilian Labor Force, by Race, Sex and Years of School Completed: 1960,-1970

Total, Ages 16-24

	Years of School Completed				
	Total	Less than 9	9 - 11	12	13 and Over
BOTH SEXES, TOTAL					
1960	43.4	21.4	30.0	48.3	59.9
1970	45.0	22.5	28.4	44.5	57.7
WHITE, TOTAL					
1960	45.5	23.1	31.8	49.7	60.5
1970	46.1	23.9	29.3	45.3	57.8
NONWHITE, TOTAL					
1960	25.9	16.9	18.4	32.5	48.9
1970	36.4	16.3	23.4	38.5	56.3
MALE, TOTAL					
1960	37.3	21.8	28.2	40.2	55.7
1970	37.3	20.9	24.7	35.4	51.3
WHITE, MALE					
1960	39.3	23.6	29.6	41.6	56.2
1970	38.1	22.2	25.2	35.7	51.3
NONWHITE, MALE					
1960	21.6	16.6	18.4	24.5	43.8
1970	30.8	14.7	21.7	32.8	52.1
FEMALE, TOTAL					
1960	53.5	19.8	34.0	58.3	65.4
1970	54.3	26.1	35.5	54.0	64.9
WHITE, FEMALE					
1960	54.8	20.9	36.7	58.9	66.2
1970	55.8	27.7	37.5	55.2	65.4
NONWHITE, FEMALE					
1960	32.8	17.5	18.3	41.5	53.6
1970	42.6	19.2	26.0	44.1	59.4

Note: The indices of occupational status are averages of the occupation status scores weighted by employment in each occupation. The derivation of the occupation status scores is discussed in Chapter I.

Table 32

Occupational Status Indices for Workers with 12 Years of Education by Race, Sex, and Age Group: 1960, 1970

Race, Sex	Age Group				
	16-24 Years	25-34 Years	35-44 Years	45-54 Years	55 Years and Over
BOTH SEXES, TOTAL					
1960	46.6	49.6	52.3	53.4	55.9
1970	43.8	48.2	51.3	52.9	53.9
WHITE, TOTAL					
1960	48.5	51.3	53.5	54.4	56.7
1970	44.5	49.5	52.6	53.9	54.8
NONWHITE, TOTAL					
1960	31.0	32.3	32.8	1/	1/
1970	38.1	37.8	38.0	36.4	1/
MALE, TOTAL					
1960	39.7	46.3	49.9	51.0	55.0
1970	35.4	44.2	48.4	50.1	51.0
WHITE, MALE					
1960	41.6	47.4	50.8	51.7	55.5
1970	35.7	45.0	49.1	51.0	51.8
NONWHITE, MALE					
1960	24.5	32.4	32.6	1/	1/
1970	32.8	35.0	38.1	32.8	1/
FEMALE, TOTAL					
1960	57.1	55.5	56.3	57.0	57.5
1970	53.9	55.1	55.2	56.5	57.5
WHITE, FEMALE					
1960	58.9	58.8	57.9	58.3	58.7
1970	55.2	57.3	57.3	57.6	58.5
NONWHITE, FEMALE					
1960	41.5	32.2	33.0	1/	1/
1970	44.1	40.9	37.7	40.1	1/

Note: The indices of occupational status are averages of the occupational status scores weighted by employment in each occupation, as discussed in Chapter 1.

1/ Status indices not shown for groups with base totals less than 100,000.

adult white men appears to have widened over the decade. Thus, in 1960, the index for white men, aged 16-24 years with 12 years of schooling, was less than 5 points below that of the corresponding index for all white male workers, 16 years and over. In 1970, this differential had grown to about 11 points, due to a relatively sharp reduction in occupational status of young white workers between 1960 and 1970. The reverse was the case, however, for the non-white male youth, who began their work careers in the less discriminatory labor market climate of the 1960's. Thus, whereas the status index of non-white male high school graduates, aged 16-24, had been 6.5 points below that for all non-white men 16 years and over with similar education in 1960, it was only 2.1 points lower in 1970.

The data for non-white female youth are a partial exception to the pattern described above. In 1960, the occupational status indices for the 16-24 year old, non-white girls at each educational level, other than college women, were higher in 1960 than the corresponding indices for non-white women of all ages. This is probably due to the fact that, in 1960, disproportionately large numbers of mature Negro women were still engaged in menial service work: as maids, cooks, charwomen, etc., whereas a much smaller proportion of younger Negro women had entered those occupations. Between 1960 and 1970 the status indices increased for all age-education specific groups of non-white women with the younger women still retaining a higher average occupational standing than their adult counterparts.

To provide further insights on the extent of occupational upgrading of workers during the 1960-70 decade, we have also computed status indices by ten-year age group for one specific educational attainment category, those with 12 years of school completed. The patterns for men workers are particularly relevant in this context since all but a small percentage of young men who complete high school and do not go on to college, enter the labor force in their late 'teens and remain in the labor force until death or retirement. Hence -- with the partial exception of the youngest working age group in 1960, i.e., ages 16-24 years -- a cohort analysis showing the change in occupational status of men in these age classes over the period, 1960-70, provides a close approximation of the net change in occupational status for the same group of workers. These comparisons, adapted from Table 32, are shown below:

Net Change in Status Index of Male Workers, with 12 Years of Education

Age Group		Net Change in Status Index, 1960-70		
1960	1970	Total Males	White	Non-White
16-24	25-34	4.5	3.4	10.5
25-34	35-44	2.1	1.7	5.7
35-44	45-54	0.2	0.2	0.2
45-54	55 and Over	0.0	0.1	N.A.

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It will be evident that, even with some allowance for lack of direct comparability in coverage of the youngest age class, upward occupational mobility of both white and non-white men workers who were terminal high school graduates was largely concentrated in their first two decades of working life, with very little progress in status, for the average worker, beyond his late thirties or early forties. This cohort analysis also confirms our earlier findings concerning the relatively sharp occupational upgrading of *younger* non-white workers over the decade. In contrast to the very significant improvements in status of non-white men workers with a high school diploma, who were in the 16-34 year age group in 1960, those who were 35 years and over in 1960 experienced little or no net upgrading over the decade.

The status indexes for white women high school graduates indicate no similar pattern of upgrading with age, reflecting both the limited advancement opportunities for such women (who are mainly concentrated in clerical and sales jobs) as well as the effects of less continuous labor force experience. In contrast, the data for non-white women high school graduates indicate that both the 25-34 year age class and the 35-44 year age class, as of 1960, was able to improve its status significantly over the decade, typically by moving into white collar jobs from lower-status service-type occupations.

Extent of Reductions in the White-Non-White Status Gap -- The net effect of these changes in occupational distribution upon the relative occupational position of non-white vs. white workers in specific age, sex and educational achievement groups is indicated in Table 33. In addition to showing the net changes in the ratios of the respective non-white/white occupational status indices between 1960 and 1970 for each of these groups, we have expressed these changes as percentages of the "status gap" for each group as of 1960. Thus the 1960 occupational status index for all non-white workers, 16 years and over, of 25.1 compared to that for white workers, of 49.0 had resulted in a ratio of .512. The 1960 "status gap," defined as the complement of this ratio, was therefore .488. In 1970, the ratio of the non-white to white occupational status indices was .663, an increase of .151 points. This in turn corresponded to a reduction of 31% in the non-white/white status gap of .488 over the decade.

Based on this criterion, an inspection of Table 33 indicates that progress of non-whites in bridging their occupational status gap relative to white workers was positively and strongly associated with educational level. The greatest percentage reductions in the non-white/white occupational status differential were achieved by college educated non-whites, those with 13 years or more of school completed. For the total non-white experienced civilian labor force, the status gap for college-educated workers was reduced by 50% over the decade, as contrasted to reductions of 36% for those with 12 years of education, 29% for those with 9-11 years of schooling, and only 20% for those with less than 9 years of school completed.

Table 33

Occupational Status Index Ratios of Non-White Workers, Relative to White Workers, by Sex, Age Group and Educational Attainment: 1960, 1970

	Total	Years of School Completed			
		Less than 9	9-11	12	13 and Over
TOTAL, 16 YEARS AND OVER					
1960	.512	.520	.496	.591	.851
1970	.663	.616	.641	.738	.921
Net Change	.151	.096	.145	.147	.074
Percent Reduction in Status Gap	31%	20%	29%	36%	50%
MALES, TOTAL					
1960	.550	.588	.576	.643	.811
1970	.671	.671	.705	.749	.909
Net Change	.121	.083	.129	.106	.098
Percent Reduction in Status Gap	27%	20%	30%	30%	52%
FEMALES, TOTAL					
1960	.453	.390	.382	.526	.879
1970	.631	.485	.523	.707	.921
Net Change	.178	.095	.141	.181	.042
Percent Reduction in Status Gap	33%	16%	23%	38%	35%
AGES 16-24					
1960	.569	.732	.579	.654	.808
1970	.790	.682	.799	.850	.974
Net Change	.221	-.050	.220	.196	.166
Percent Reduction in Status Gap	51%	-19%	52%	57%	87%
MALES, 16-24					
1960	.550	.703	.622	.589	.779
1970	.808	.662	.861	.919	1.016
Net Change	.258	-.041	.239	.330	.237
Percent Reduction in Status Gap	57%	-14%	63%	80%	107%
FEMALES, 16-24					
1960	.599	.837	.499	.705	.810
1970	.763	.693	.693	.799	.908
Net Change	.164	-.146	.194	.094	.098
Percent Reduction in Status Gap	41%	-90%	38%	32%	52%

Younger non-white workers, aged 16-24 years, achieved much more rapid relative progress in status advancement than did adult non-whites, 25 years and over. Over the decade, their occupational status gap, as compared to white workers, aged 16-24 years, was reduced by 51%, whereas the corresponding reduction for all non-white age groups was 31%. The disparity in occupational progress by educational level was particularly wide for these younger non-white workers. In the case of college-educated non-whites, the occupational status gap with white youths had been virtually closed by 1970. In contrast, the gap had actually been widened between 1960 and 1970, in the case of that small proportion of non-white youth who had not progressed beyond the 8th grade. (The latter figures, indicating an increase in the status gap of 19% over the decade are, however, subject to particularly large sampling variability.)

Among the younger non-whites, male workers achieved greater gains in occupational upgrading, relative to whites, than did female workers. Non-white men aged 16-24 years reduced their status gap, as compared to white male youth, by 57% over the decade, with particularly sharp gains for those with 13 or more years of school (107%) and with 12 years of school (80%). Non-white women in most age/education specific categories tended to lag in their relative rate of progress as compared to non-white men with similar educational attainment.

The very positive advances towards occupational integration of the better-educated non-white workers indicated by these statistics must be balanced, however, against the evidence cited earlier in this chapter, of significant declines in labor force participation among non-white males, particularly youth, and against the persistence of differentially high unemployment rates for Negroes throughout the decade. Labor force participation rates, moreover, were particularly low among the less-educated Negro youth out-of-school, i.e., those who had not completed high school and whose job opportunities were mainly confined to low status "Group V-type" jobs.

One inference which has been drawn from a juxtaposition of the two trends described above has been that increasing numbers of black youths with very limited occupational options have effectively withdrawn from conventional work or work-seeking activity, because of "rejection" of the low status jobs available to them -- in some cases engaging in illicit activities, in lieu of conventional employment. Another possible explanation is that many of the types of low-status jobs previously occupied by non-white youths or adults, such as food service jobs or construction labor, have become less accessible to non-whites because of the more rapid growth of these jobs in the suburbs and because of increased competition from the growing number of white youths for such work.

F. Occupational Composition

In the preceding sections, we have examined the changes in distribution of major socio-demographic components of the labor force among occupations over the past decade. We shall now turn to an inspection of these trends in the composition of the labor force within specific occupations or occupational status groups, based on such characteristics as sex, race, age and educational attainment. We shall be interested in examining the differential impact of the overall changes in labor force composition during the 1960's, upon the work force of the various occupations -- and particularly of the low status occupations -- in terms of their respective age composition, racial composition, the proportion of women in each occupation, and shifts in educational attainment. Collateral data on trends in part-time employment and in participation of foreign born workers in various occupations, will also be examined.

Status Group Summaries -- An initial overview of these shifts in occupational composition is provided in Table 34, which shows the 1960 and 1970 distributions of the labor force within each occupational status group by broad age group and race. The decade of the 1960's had been marked, as noted earlier in the chapter, by a large-scale inflow of youth and younger adults into the civilian labor force. Younger workers, in past decades, have tended to be disproportionately concentrated in the least skilled, entry-type occupations, and particularly in those jobs which have been most amenable to utilization of a part-time casual labor force, such as laborers, personal service occupations and retail sales. (See Chapter II.) The summary statistics indicate that this trend was accentuated for white youth in the decade of the 1960's. Thus, although the total labor force in Group V occupations grew by only 160,000, or 28%, over the decade, this was the net result of a large inflow of young white workers offsetting sharp reductions in the number of non-whites in this occupational class. As a result, the proportion of young white workers in Group V occupations rose from 14% in 1960 to nearly 24% in 1970, with corresponding reductions among non-whites (youth and adults), as well as among white adult workers, 25 years and over.

Table 34

Distribution of Experienced Civilian Labor Force in Each Occupation Status Group by Broad Age Group and Race, 1960-1970 1/

Total, Both Sexes

Occupational Group	Total	Age 16 - 24			Age 25 and Over		
		Total	White	Non-White	Total	White	Non-White
	Number (000)						
TOTAL							
1960	64366	9655	8625	1030	54711	49046	5665
1970	75113	14722	13145	1577	60371	54006	6385
Net Change	10747	5067	4520	547	5660	4960	720
GROUP I							
1960	7398	777	747	30	6621	6281	340
1970	10641	1575	1479	96	9066	8438	628
Net Change	3243	798	732	66	2445	2157	288
GROUP II							
1960	19810	3229	3110	119	16581	16026	555
1970	24711	5115	4670	445	19596	18583	1013
Net Change	4901	1886	1560	326	3015	2557	458
GROUP III							
1960	14545	1469	1353	116	13076	12232	844
1970	15686	2274	2070	204	13412	12345	1067
Net Change	1141	805	717	88	336	113	223
GROUP IV							
1960	14454	2587	2298	289	11867	10450	1417
1970	15755	3466	2978	488	12289	10572	1717
Net Change	1301	879	680	199	422	122	300
GROUP V							
1960	8159	1615	1142	473	6544	4031	2513
1970	8320	2363	1972	391	5957	3994	1963
Net Change	161	748	830	-82	-587	-37	-550
	Percent Distribution						
TOTAL							
1960	100.0	15.0	13.4	1.6	85.0	76.2	8.8
1970	100.0	19.6	17.5	2.1	80.4	71.9	8.5
GROUP I							
1960	100.0	10.5	10.1	0.4	89.5	84.9	4.6
1970	100.0	14.8	13.9	0.9	85.2	79.3	5.9
GROUP II							
1960	100.0	16.3	15.7	0.6	83.7	80.9	2.8
1970	100.0	20.7	18.9	1.8	79.3	75.2	4.1
GROUP III							
1960	100.0	10.1	9.3	0.8	89.9	84.1	5.8
1970	100.0	14.5	13.2	1.3	85.5	78.7	6.8
GROUP IV							
1960	100.0	17.9	15.9	2.0	82.1	72.3	9.8
1970	100.0	22.0	18.9	3.1	78.0	67.1	10.9
GROUP V							
1960	100.0	19.8	14.0	5.8	80.2	49.4	30.8
1970	100.0	23.4	23.7	4.7	71.6	48.0	23.6

Note: All control totals are net of not reported and allocated items to achieve comparability in 1960 and 1970.

1/ Detail may not add to totals due to rounding.

Table 35

Distribution of Experienced Civilian Labor Force in Each Occupation Status Group by Broad Age Group and Race, 1960-1970 1/

Male Workers

Occupational Group	Total	Age 16 - 24			Age 25 and Over		
		Total	White	Non-White	Total	White	Non-White
	Number (000)						
TOTAL							
1960	43400	5859	5208	651	37541	34112	3429
1970	47016	8087	7241	846	38929	35262	3667
Net Change	3616	2228	2033	195	1388	1150	238
GROUP I							
1960	4549	410	396	14	4139	3980	159
1970	6290	749	705	44	5541	5258	283
Net Change	1741	339	309	30	1402	1278	124
GROUP II							
1960	10876	1185	1142	43	9691	9397	294
1970	12097	1560	1427	133	10537	10065	472
Net Change	1221	375	285	90	846	668	178
GROUP III							
1960	12665	1254	1140	114	11411	10740	671
1970	13066	1699	1568	131	11367	10544	823
Net Change	401	445	428	17	-44	-196	152
GROUP IV							
1960	9913	1695	1517	178	8218	7207	1011
1970	10090	2149	1856	293	7941	6841	1100
Net Change	177	454	339	115	-277	-366	89
GROUP V							
1960	5397	1279	977	302	4118	2828	1290
1970	5473	1938	1697	241	3535	2561	974
Net Change	76	659	720	-61	-583	-267	-316
	Percent Distribution						
TOTAL							
1960	100.0	13.5	12.0	1.5	86.5	78.6	7.9
1970	100.0	17.2	15.4	1.8	82.8	75.0	7.8
GROUP I							
1960	100.0	9.0	8.7	0.3	91.0	87.5	3.5
1970	100.0	11.9	11.2	0.7	88.1	83.6	4.5
GROUP II							
1960	100.0	10.9	10.5	0.4	89.1	86.4	2.7
1970	100.0	12.9	11.8	1.1	87.1	83.2	3.9
GROUP III							
1960	100.0	9.9	9.0	0.9	90.1	84.8	5.3
1970	100.0	13.0	12.0	1.0	87.0	80.7	6.3
GROUP IV							
1960	100.0	17.1	15.3	1.8	82.9	72.7	10.2
1970	100.0	21.3	18.4	2.9	78.7	67.8	10.9
GROUP V							
1960	100.0	23.7	18.1	5.6	76.3	52.4	23.9
1970	100.0	35.4	31.0	4.4	64.6	46.8	17.8

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1/ Detail may not add to totals due to rounding.

Table 36

Distribution of Experienced Civilian Labor Force in Each Occupation Status Group by Broad Age Group and Race, 1960-1970 1/

Female Workers

Occupational Group	Total	Age 16 - 24			Age 25 and Over		
		Total	White	Non-White	Total	White	Non-White
	Number (000)						
TOTAL							
1960	20966	3857	3459	398	17109	14886	2223
1970	28097	6716	5957	759	21381	18656	2725
Net Change	7131	2859	2493	361	4272	3770	502
GROUP I							
1960	2849	370	353	17	2479	2296	183
1970	4351	822	774	48	3529	3181	348
Net Change	1502	452	421	31	1050	885	165
GROUP II							
1960	8934	2037	1966	71	6897	6638	259
1970	12614	3544	3229	315	9070	8540	530
Net Change	3680	1507	1263	244	2173	1902	271
GROUP III							
1960	1880	237	201	36	1643	1474	169
1970	2620	526	471	55	2094	1850	244
Net Change	740	289	270	19	451	376	75
GROUP IV							
1960	4541	881	772	109	3660	3256	404
1970	5665	1337	1139	198	4328	3711	617
Net Change	1124	456	367	89	668	455	213
GROUP V							
1960	2762	331	160	171	2431	1210	1221
1970	2847	382	248	134	2465	1463	1002
Net Change	85	51	88	-37	34	253	-219
	Percent Distribution						
TOTAL							
1960	100.0	18.4	16.5	1.9	81.6	71.0	10.6
1970	100.0	23.9	21.2	2.7	76.1	66.4	9.7
GROUP I							
1960	100.0	13.0	12.4	0.6	87.0	80.6	6.4
1970	100.0	18.9	17.8	1.1	81.1	73.1	8.0
GROUP II							
1960	100.0	22.8	22.0	0.8	77.2	74.3	2.9
1970	100.0	28.1	25.6	2.5	71.9	67.7	4.2
GROUP III							
1960	100.0	12.6	10.7	1.9	87.4	78.4	9.0
1970	100.0	20.1	18.0	2.1	79.9	70.6	9.3
GROUP IV							
1960	100.0	19.4	17.0	2.4	80.6	71.7	8.9
1970	100.0	23.6	20.1	3.5	76.4	65.5	10.9
GROUP V							
1960	100.0	12.0	5.8	6.2	88.0	43.8	44.2
1970	100.0	13.4	8.7	4.7	86.6	51.4	35.2

1/ Detail may not add to totals due to rounding.

The separate summaries for men and women (Tables 35 and 36) indicate that the increased concentration of youth in Group V occupations consisted almost entirely of white males. Between 1960 and 1970, the percentage of white male workers, aged 16-24 years, in Group V occupations, rose from 18.1% to 31.0% -- a much greater increase than in any other occupational status group. In contrast, younger female workers, aged 16-24 years, have accounted for a much smaller proportion of the total female labor force in Group V occupations than has been the case for younger male workers. Morever, the percentage of 16-24 year-olds among women in Group V occupations rose only marginally from 12.0% in 1960 to 13.4% in 1970, a much smaller relative growth in this age group than in white collar or in higher status blue collar occupations. Thus, whereas an increased proportion of young men began their work careers in relatively low-skilled labor jobs, a much smaller percentage of young women had entered similar "female-type" low status jobs, such as domestics or other routine service or manual occupations (exclusive of babysitters).

Trends in Age Composition by Occupation -- The more detailed statistics on the age/race composition of the labor force by sex for each of the 57 occupations are shown in Tables 37 to 39. In 1960, as well as earlier periods, a number of occupations characteristically included large proportions of youthful workers. These were typically occupations which required limited work experience or skill and which provided opportunities for part-time employment, within easy access of their homes. Thus, particularly high concentrations of workers, aged 16-24 years, were found among babysitters, retail clerks, the less skilled food service occupations, automobile service and parking attendants, other non-manufacturing laborers, and in many office clerical occupations. Conversely, smaller-than-average proportions of youthful workers were found in professional and managerial occupations, among skilled craftsmen and among manufacturing industry workers.

Table 37

Percent Distribution of the Experienced Civilian Labor Force 16 years and Over in Each Occupation, by Broad Age Group and Race: 1960, 1970

Total, Both Sexes

Occupation Title	Year	Total	Age 16-24			Age 25 and Over		
			Total	White	Non-White	Total	White	Non-White
TOTAL, EXPERIENCED CIVILIAN LABOR FORCE	1960	100.0	15.0	13.4	1.6	85.0	76.2	8.8
	1970	100.0	19.6	17.5	2.1	80.4	71.9	8.5
GROUP I, TOTAL	1960	100.0	10.5	10.1	0.4	89.5	84.9	4.6
	1970	100.0	14.8	13.9	0.9	85.2	79.3	5.9
Engineers	1960	100.0	5.8	5.7	0.1	94.2	92.9	1.3
	1970	100.0	5.8	5.4	0.4	94.2	91.1	3.1
Teachers, Excluding College	1960	100.0	9.4	8.9	0.5	90.6	83.4	7.2
	1970	100.0	17.9	16.8	1.1	82.1	74.0	8.1
Medical Personnel a/	1960	100.0	11.3	10.4	0.9	88.7	83.5	5.2
	1970	100.0	15.8	15.0	0.8	84.2	77.5	6.7
Other Professional and Technical Workers b/	1960	100.0	12.0	11.7	0.3	88.0	84.1	3.9
	1970	100.0	14.8	13.9	0.9	85.2	80.1	5.1
GROUP II, TOTAL	1960	100.0	16.3	15.7	0.6	83.7	80.9	2.8
	1970	100.0	20.7	18.9	1.8	79.3	75.2	4.1
Managers, Officials and Proprietors, Non-Farm	1960	100.0	3.1	3.1	0.0	96.9	94.6	2.3
	1970	100.0	5.2	4.8	0.4	94.8	91.8	3.0
Clerical, Total	1960	100.0	24.3	23.3	1.0	75.7	72.1	3.6
	1970	100.0	29.7	26.8	2.9	70.3	65.2	5.1
Bookkeepers	1960	100.0	19.3	19.2	0.1	80.7	79.6	1.1
	1970	100.0	16.4	15.1	1.3	83.6	81.6	2.0
Secretaries, Stenographers, Typists	1960	100.0	31.2	30.0	1.2	68.8	66.4	2.4
	1970	100.0	36.8	33.8	3.0	63.2	60.2	3.0
Office Machine Operators	1960	100.0	27.8	26.5	1.3	72.2	68.3	3.9
	1970	100.0	35.0	31.3	3.7	65.0	57.5	7.5
Telephone Operators	1960	100.0	27.0	26.4	0.6	73.0	71.6	1.4
	1970	100.0	39.2	32.0	7.2	60.8	56.7	4.1
Cashiers	1960	100.0	30.6	30.0	0.6	69.4	67.8	1.6
	1970	100.0	40.4	37.7	2.7	59.6	54.5	5.1
Postal Clerks, Mail Carriers	1960	100.0	7.0	6.0	1.0	93.0	81.7	11.3
	1970	100.0	12.1	8.0	4.1	87.9	73.7	14.2
Other Clerical, n.e.c. c/	1960	100.0	22.3	21.1	1.2	77.7	73.3	4.4
	1970	100.0	27.7	24.8	2.9	72.3	65.9	6.4
Sales, Total	1960	100.0	17.0	16.4	0.6	83.0	81.3	1.7
	1970	100.0	19.0	18.0	1.0	81.0	78.1	2.9
Retail Clerks	1960	100.0	22.8	22.0	0.8	77.2	75.1	2.1
	1960	100.0	28.7	27.4	1.3	71.3	67.8	3.5
Other Sales	1960	100.0	11.3	10.9	0.4	88.7	87.3	1.4
	1970	100.0	10.9	10.2	0.7	89.1	86.7	2.4
Policemen, Firemen, etc. d/	1960	100.0	5.2	5.2	0.0	94.8	91.5	3.3
	1970	100.0	12.1	11.4	0.7	87.9	83.6	4.3
GROUP III, TOTAL	1960	100.0	10.1	9.3	0.8	89.9	84.1	5.8
	1970	100.0	14.5	13.2	1.3	85.5	78.7	6.8
Craftsmen and Foremen, Total	1960	100.0	8.1	7.7	0.4	91.9	87.5	4.4
	1970	100.0	11.6	10.7	0.9	88.4	82.8	5.6
Foremen, n.e.c.	1960	100.0	2.1	2.1	0.0	97.9	96.2	1.7
	1970	100.0	5.6	5.2	0.4	94.4	89.5	4.9
Mechanics, Excluding Auto	1960	100.0	10.0	9.4	0.6	90.0	84.5	5.5
	1970	100.0	9.7	9.1	0.6	90.3	84.8	5.5
Machinists	1960	100.0	7.6	7.6	0.0	92.4	87.9	4.5
	1970	100.0	9.6	8.4	1.2	90.4	85.2	5.2

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Table 37

(continued)

Percent Distribution of the Experienced Civilian Labor Force 16 Years and Over in Each Occupation, by Broad Age Group and Race: 1960, 1970

Total, Both Sexes

Occupation Title	Year	Total	Age 16-24			Age 25 and Over		
			Total	White	Non-White	Total	White	Non-White
GROUP III, (continued)								
Metal Working Crafts, Excluding Mechanics, Machinists	1960	100.0	7.3	7.0	0.3	92.7	87.7	5.0
	1970	100.0	10.2	9.7	0.5	89.8	86.2	3.6
Carpenters	1960	100.0	8.1	7.6	0.5	91.9	86.2	5.7
	1970	100.0	9.6	9.0	0.6	90.4	83.8	6.6
Electricians, Brickmasons, Excavating Machine Operators, etc. e/	1960	100.0	7.4	6.9	0.5	92.6	87.7	4.9
	1970	100.0	10.8	9.9	0.9	89.2	83.2	6.0
All Other Craftsmen, n.e.c. f/	1960	100.0	11.0	10.4	0.6	89.0	85.2	3.8
	1970	100.0	19.6	18.1	1.5	80.4	74.1	6.3
Farmers, Farm Managers, and Unpaid Farm Workers, Total	1960	100.0	7.9	6.5	1.4	92.1	85.8	6.3
	1970	100.0	3.3	3.1	0.2	96.7	92.6	4.1
Barbers, Bartenders, Practical Nurses, etc. g/	1960	100.0	17.5	15.1	2.4	82.5	71.4	11.1
	1970	100.0	32.3	29.4	2.9	67.7	58.1	9.6
Operatives, Total	1960	100.0	16.2	14.6	1.6	83.8	77.0	6.8
	1970	100.0	19.5	17.3	2.2	80.5	70.4	10.1
Deliverymen, Routemen	1960	100.0	26.0	22.5	3.5	74.0	68.4	5.6
	1970	100.0	24.0	21.7	2.3	76.0	68.5	7.5
Checkers, Examiners and Inspectors	1960	100.0	11.6	10.6	1.0	88.4	84.1	4.3
	1970	100.0	12.9	11.6	1.3	87.1	79.6	7.5
Operatives, Non-Durable Mfg., Incl. Chemical, Petroleum, etc. h/	1960	100.0	15.4	14.2	1.2	84.6	78.7	5.9
	1970	100.0	23.5	20.9	2.6	76.5	65.9	10.6
Operatives, Transport Equipment Manufacturing	1960	100.0	14.0	12.5	1.5	86.0	74.2	11.8
	1970	100.0	16.6	14.1	2.5	83.4	68.4	15.0
GROUP IV, TOTAL	1960	100.0	17.9	15.9	2.0	82.1	72.3	9.8
	1970	100.0	22.0	18.9	3.1	78.0	67.1	10.9
Craftsmen, Total	1960	100.0	11.9	11.2	0.7	88.1	79.1	9.0
	1970	100.0	17.7	16.5	1.2	82.3	72.9	9.4
Auto Mechanics	1960	100.0	13.8	13.0	0.8	86.2	78.8	7.4
	1970	100.0	19.9	19.0	0.9	80.1	72.1	8.0
Construction Painters, Plasterers, Cement and Concrete Finishers, Roofers, Paperhangers	1960	100.0	9.6	9.1	0.5	90.4	79.3	11.1
	1970	100.0	12.9	11.3	1.6	87.1	75.3	11.8
Transport Operatives, Total	1960	100.0	17.1	15.2	1.9	82.9	70.0	12.9
	1970	100.0	19.6	17.8	1.8	80.4	69.5	10.9
Truck and Tractor Drivers	1960	100.0	13.2	11.3	1.9	86.8	73.9	12.9
	1970	100.0	11.8	9.8	2.0	88.2	76.5	11.7
Auto Service and Parking Attendants	1960	100.0	43.6	41.2	2.4	56.4	45.0	11.4
	1970	100.0	53.8	51.8	2.0	46.2	42.0	4.2
Taxi Drivers, Bus Drivers, etc. i/	1960	100.0	8.5	7.3	1.2	91.5	77.2	14.3
	1970	100.0	11.2	10.0	1.2	88.8	74.2	14.6
Other Operatives, Total	1960	100.0	16.1	14.5	1.6	83.9	76.2	7.7
	1970	100.0	19.8	16.4	3.4	80.2	69.9	10.3
Packers	1960	100.0	24.6	21.7	2.9	75.4	65.7	9.7
	1970	100.0	25.4	20.5	4.9	74.6	63.1	11.5
Welders, Flamecutters	1960	100.0	6.6	5.8	0.8	93.4	86.6	6.8
	1970	100.0	11.9	10.8	1.1	88.1	79.2	8.9
Operatives, Metal Working Industries j/	1960	100.0	16.0	14.9	1.1	84.0	77.3	6.7
	1970	100.0	16.4	14.0	2.4	83.6	74.4	9.2
Operatives, Lumber, Furniture, Stone, Clay and Glass Industries	1960	100.0	19.9	17.0	2.9	80.1	69.2	10.9
	1970	100.0	32.4	26.3	6.1	67.6	49.7	17.9

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Table 37

(continued)

Percent Distribution of the Experienced Civilian Labor Force 16 Years and Over in Each Occupation, by Broad Age Group and Race: 1960, 1970

Total, Both Sexes

Occupation Title	Year	Total	Age 16-24			Age 25 and Over		
			Total	White	Non-White	Total	White	Non-White
GROUP IV, (continued)								
Operatives, Food and Tobacco Industries	1960	100.0	14.6	12.4	2.2	85.4	71.3	14.1
	1970	100.0	19.0	14.6	4.4	81.0	65.8	15.2
Operatives, Textiles, Apparel and Leather Industries	1960	100.0	15.7	14.4	1.3	84.3	78.9	5.4
	1970	100.0	19.9	15.7	4.2	80.1	71.5	8.6
Operatives, Non-Manufacturing Industries	1960	100.0	14.4	12.8	1.6	85.6	78.1	7.5
	1970	100.0	21.7	18.2	3.5	78.3	68.7	9.6
Shipping and Receiving Clerks, Messengers and Office Boys	1960	100.0	25.1	22.6	2.5	74.9	61.9	13.0
	1970	100.0	29.5	24.3	5.2	70.5	58.6	11.9
Services, Total	1960	100.0	26.8	22.9	3.9	73.2	62.1	11.1
	1970	100.0	30.8	27.3	3.5	69.2	56.5	12.7
Guards and Watchmen, Crossing Guards and Bridge Tenders	1960	100.0	4.4	3.2	1.2	95.6	92.0	3.6
	1970	100.0	8.4	7.5	0.9	91.6	80.1	11.5
Housekeepers and Babysitters	1960	100.0	27.5	23.4	4.1	72.5	56.7	15.8
	1970	100.0	23.2	19.6	3.6	76.8	54.8	22.0
Waiters and Counter and Fountain Workers	1960	100.0	29.7	26.0	3.7	70.3	62.8	7.5
	1970	100.0	37.6	35.2	2.4	62.4	56.0	6.4
Hospital Attendants	1960	100.0	22.4	16.5	5.9	77.6	57.6	20.0
	1970	100.0	31.6	24.9	6.7	68.4	48.8	19.6
Laborers, Metal Working Industries k/	1960	100.0	18.9	16.3	2.6	81.1	58.8	22.3
	1970	100.0	29.2	25.6	3.6	70.8	54.4	16.4
GROUP V, TOTAL	1960	100.0	19.8	14.0	5.8	80.2	49.4	30.8
	1970	100.0	28.4	23.7	4.7	71.6	48.0	23.6
Non-Farm Laborers, Total	1960	100.0	24.1	19.6	4.5	75.9	53.3	22.6
	1970	100.0	37.9	32.7	5.2	62.1	45.8	16.3
Laborers, Lumber, Furniture, Stone, Clay and Glass Industries	1960	100.0	21.8	14.7	7.1	78.2	55.6	22.6
	1970	100.0	22.8	19.5	3.3	77.2	57.7	19.5
Laborers, Non-Durable fg., ncl. Chemicals, Petroleum, etc.	1960	100.0	23.1	18.4	4.7	76.9	59.6	17.3
	1970	100.0	32.3	25.6	6.7	67.7	52.9	14.8
Construction Laborers	1960	100.0	18.5	14.8	3.7	81.5	55.6	25.9
	1970	100.0	26.5	22.9	3.6	73.5	51.5	22.0
Laborers, Non-Manufacturing Industries	1960	100.0	28.0	23.8	4.2	72.0	49.7	22.3
	1970	100.0	44.7	38.9	5.8	55.3	41.1	14.2
Farm Laborers - Paid	1960	100.0	30.5	22.4	8.1	69.5	48.9	2016
	1970	100.0	30.2	26.3	3.9	69.8	50.0	19.8
Personal Services, Total	1960	100.0	12.7	6.7	6.0	87.3	46.6	40.7
	1970	100.0	20.4	16.0	4.4	79.6	49.4	30.2
Cooks	1960	100.0	9.2	6.1	3.1	90.8	68.6	22.2
	1970	100.0	19.9	16.1	3.8	80.1	63.9	16.2
Kitchen Workers	1960	100.0	27.3	17.3	10.0	72.7	54.8	17.9
	1970	100.0	41.4	36.4	5.0	58.6	43.6	15.0
Janitors and Sextons	1960	100.0	12.3	8.2	4.1	87.7	59.9	27.8
	1970	100.0	26.0	21.6	4.4	74.0	54.5	19.5
Cleaners, Charwomen, Porters, Chambermaids and Elevator Operators	1960	100.0	13.9	6.3	7.6	86.1	41.5	44.6
	1970	100.0	18.4	12.7	5.7	81.6	49.4	32.2
Laundry and Dry Cleaning Operatives	1960	100.0	13.5	7.9	5.6	86.5	53.3	33.2
	1970	100.0	14.2	9.8	4.4	85.8	54.0	31.8
Private Household, n.e.c.	1960	100.0	10.7	4.1	6.6	89.3	27.7	61.6
	1970	100.0	7.2	3.3	3.9	92.8	29.6	63.2

Footnotes

Table 37

a/ Includes physicians, dentists, medical and dental technicians, and all other health occupations classified as professional.

b/ Includes all other professional and technical workers, not elsewhere classified.

c/ Includes all other clerical and kindred workers, not elsewhere classified, except shipping and receiving clerks, messengers and office boys.

d/ Includes policemen, firemen, marshals and constables, sheriffs and bailiffs.

e/ Includes electricians, brickmasons, excavtaing, grading, and road machinery operators, plumbers and pipefitters, and structural metalworkers.

f/ Includes all other craftsmen and foremen, not elsewhere classified, except those in Status Group IV.

g/ Includes barbers, bartenders, practical nurses, attendants, recreation and amusement, ushers, and all other service workers not elsewhere classified.

h/ Includes operatives not elsewhere classified in the following non-durable goods industries: paper and allied products, printing and publishing, chemicals and allied products, petroleum and coal products, rubber and plastic products, not specified non-durable manufacturing.

i/ Includes taxi drivers, bus drivers, rail conductors, subway motormen, mine motormen, railroad brakemen, railroad switchmen, boatmen and canalmen, and sailors and deck hands.

j/ Includes operatives, not elsewhere classified, in the following industries: metal industries, machinery, except electrical, electrical machinery, professional and photographic equipment, miscellaneous manufacturing.

k/ Same industrial distribution as for operatives in footnote j.

Table 38

Percent Distribution of the Experienced Civilian Labor Force 16 Years and Over in Each Occupation, by Broad Age Group and Race: 1960, 1970

Male Workers

Occupation Title	Year	Total	Age 16-24			Age 25 and Over		
			Total	White	Non-White	Total	White	Non-White
TOTAL, EXPERIENCED CIVILIAN LABOR FORCE	1960	100.0	13.5	12.0	1.5	86.5	78.6	7.9
	1970	100.0	17.2	15.4	1.8	82.8	75.0	7.8
GROUP I, TOTAL	1960	100.0	9.0	8.7	0.3	91.0	87.5	3.5
	1970	100.0	11.7	11.0	0.7	88.3	83.8	4.5
Engineers	1960	100.0	5.8	5.7	0.1	94.2	92.9	1.3
	1970	100.0	5.5	5.2	0.3	94.5	91.5	3.0
Teachers, Excluding College	1960	100.0	6.7	5.9	0.8	93.3	85.6	7.7
	1970	100.0	18.2	17.2	1.0	81.8	75.8	6.0
Medical Personnel a/	1960	100.0	4.4	3.8	0.6	95.6	92.7	2.9
	1970	100.0	8.7	7.8	0.9	91.3	85.9	5.4
Other Professional and Technical Workers b/	1960	100.0	11.3	11.1	0.2	88.7	85.2	3.5
	1970	100.0	12.7	11.9	0.8	87.3	82.7	4.6
GROUP II, TOTAL	1960	100.0	10.9	10.5	0.4	89.1	86.3	2.8
	1970	100.0	12.8	11.7	1.1	87.2	83.3	3.9
Managers, Officials and Proprietors, Non-Farm	1960	100.0	3.2	3.2	0.0	96.8	94.8	2.0
	1970	100.0	5.0	4.7	0.3	95.0	92.4	2.6
Clerical, Total	1960	100.0	19.2	18.0	1.2	80.8	75.5	5.3
	1970	100.0	23.4	20.7	2.7	76.6	69.4	7.2
Bookeepers	1960	100.0	18.1	18.1	0.0	81.9	79.5	2.4
	1970	100.0	16.0	13.4	2.6	84.0	81.1	2.9
Secretaries, Stenographers, Typists	1960	100.0	24.0	21.3	2.7	76.0	72.0	4.0
	1970	100.0	25.7	22.8	2.9	74.3	67.9	6.4
Office Machine Operators	1960	100.0	38.2	36.4	1.8	61.8	58.2	3.6
	1970	100.0	35.4	32.4	3.0	64.6	55.7	8.9
Telephone Operators	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Cashiers	1960	100.0	49.5	47.5	2.0	50.5	50.5	0.0
	1970	100.0	54.6	52.3	2.3	45.4	40.9	4.5
Postal Clerks, Mail Carriers	1960	100.0	7.2	6.1	1.1	92.8	80.9	11.9
	1970	100.0	11.0	7.4	3.6	89.0	76.7	12.3
Other Clerical, n.e.c. c/	1960	100.0	19.1	17.9	1.2	80.9	76.2	4.7
	1970	100.0	24.1	21.5	2.6	75.9	69.3	6.6
Sales, Total	1960	100.0	16.1	15.7	0.4	83.9	82.4	1.5
	1970	100.0	16.2	15.4	0.8	83.8	80.9	2.9
Retail Clerks	1960	100.0	28.4	27.6	0.8	71.6	69.4	2.2
	1970	100.0	33.8	32.4	1.4	66.2	61.7	4.5
Other Sales	1960	100.0	10.8	10.5	0.3	89.2	88.0	1.2
	1970	100.0	10.1	9.5	0.6	89.9	87.5	2.4
Policemen, Firemen, etc. d/	1960	100.0	5.3	5.3	0.0	94.7	91.8	2.9
	1970	100.0	11.4	10.7	0.7	88.6	84.6	4.0
GROUP III, TOTAL	1960	100.0	9.9	9.0	0.9	90.1	84.8	5.3
	1970	100.0	12.8	11.8	1.0	87.2	80.9	6.3
Craftsmen and Foremen, Total	1960	100.0	8.1	7.7	0.4	91.9	87.6	4.3
	1970	100.0	11.3	10.5	0.8	88.7	83.2	5.5
Foremen, n.e.c.	1960	100.0	2.1	2.1	0.0	97.9	96.3	1.6
	1970	100.0	5.3	4.9	0.4	94.7	90.0	4.7
Mechanics, Excluding Auto	1960	100.0	10.0	9.4	0.6	90.0	84.4	5.6
	1970	100.0	9.4	8.9	0.5	90.6	85.2	5.4
Machinists	1960	100.0	7.4	7.4	0.0	92.6	88.2	4.4
	1970	100.0	9.7	8.5	1.2	90.3	84.9	5.4

Note: Percentages not shown where base number is less than 50,000.

Table 38
(continued)

Percent Distribution of the Experienced Civilian Labor Force 16 Years and Over in Each Occupation, by Broad Age Group and Race: 1960, 1970

Male Workers

Occupation Title	Year	Total	Age 16-24			Age 25 and Over		
			Total	White	Non-White	Total	White	Non-White
GROUP III, (continued)								
Metal Working Crafts, Excluding Mechanics, Machinists	1960	100.0	7.4	7.1	0.3	92.6	87.6	5.0
	1970	100.0	10.2	9.7	0.5	89.8	86.3	3.5
Carpenters	1960	100.0	8.0	7.5	0.5	92.0	86.3	5.7
	1970	100.0	9.4	8.8	0.6	90.6	84.0	6.6
Electricians, Brickmasons, Excavating Machine Operators, etc. e/	1960	100.0	7.4	6.9	0.5	92.6	87.8	4.8
	1970	100.0	10.6	9.8	0.8	89.4	83.4	6.0
All Other Craftsmen, n.e.c. f/	1960	100.0	11.2	10.6	0.6	88.8	85.2	3.6
	1970	100.0	19.8	18.2	1.6	80.2	74.2	6.0
Farmers, Farm Managers, and Unpaid Farm Workers, Total	1960	100.0	8.2	6.9	1.3	91.8	85.9	5.9
	1970	100.0	3.9	3.7	0.2	96.1	92.7	3.4
Barbers, Bartenders, Practical Nurses, etc. g/	1960	100.0	19.6	17.0	2.6	80.4	71.4	9.0
	1970	100.0	32.7	29.5	3.2	67.3	58.8	8.5
Operatives, Total	1960	100.0	17.5	15.7	1.8	82.5	75.2	7.3
	1970	100.0	19.7	17.8	1.9	80.3	69.7	10.6
Deliverymen, Routemen	1960	100.0	25.4	21.8	3.6	74.6	68.8	5.8
	1970	100.0	24.1	21.9	2.2	75.9	68.4	7.5
Checkers, Examiners and Inspectors	1960	100.0	13.1	12.3	0.8	86.9	83.7	3.2
	1970	100.0	13.3	12.8	0.5	86.7	77.4	9.3
Operatives, Non-durable Mfg., Incl. Chemicals, Petroleum, etc. h/	1960	100.0	15.6	14.3	1.3	84.4	78.4	6.0
	1970	100.0	19.5	18.0	1.5	80.5	69.5	11.0
Operatives, Transport Equipment	1960	100.0	15.2	13.7	1.5	84.8	72.2	12.6
	1970	100.0	18.3	15.3	3.0	81.7	66.4	15.3
GROUP IV, TOTAL	1960	100.0	17.1	15.3	1.8	82.9	72.7	10.2
	1970	100.0	21.3	18.4	2.9	78.7	67.8	10.9
Craftsmen, Total	1960	100.0	12.0	11.4	0.6	88.0	78.9	9.1
	1970	100.0	17.5	15.9	1.6	82.5	73.0	9.5
Auto Mechanics	1960	100.0	13.8	13.1	0.7	86.2	78.7	7.5
	1970	100.0	20.0	19.0	1.0	80.0	72.1	7.9
Construction Painters, Plasterers, Cement and Concrete Finishers, Roofers, Paperhangers	1960	100.0	9.7	9.2	0.5	90.3	79.2	11.1
	1970	100.0	13.5	12.0	1.5	86.5	74.5	12.0
Transport Operatives, Total	1960	100.0	17.3	15.4	1.9	82.7	69.7	13.0
	1970	100.0	21.1	19.2	1.9	78.9	67.9	11.0
Truck and Tractor Drivers	1960	100.0	13.2	11.3	1.9	86.8	73.9	12.9
	1970	100.0	12.3	10.2	2.1	87.7	76.0	11.7
Auto Service and Parking Attendants	1960	100.0	44.3	41.9	2.4	55.7	44.1	11.6
	1970	100.0	57.3	55.4	1.9	42.7	38.9	3.8
Taxi Drivers, Bus Drivers, etc. i/	1960	100.0	9.2	7.9	1.3	90.8	75.8	15.0
	1970	100.0	12.2	10.9	1.3	87.8	71.0	16.8
Other Operatives, Total	1960	100.0	17.5	16.0	1.5	82.5	74.8	7.7
	1970	100.0	21.0	17.6	3.4	79.0	68.7	10.3
Packers	1960	100.0	34.0	32.0	2.0	66.0	54.8	11.2
	1970	100.0	33.6	25.1	8.5	66.4	52.6	13.8
Welders, Flamecutters	1960	100.0	5.7	5.2	0.5	94.3	87.2	7.1
	1970	100.0	11.9	11.2	0.7	88.1	79.3	8.8
Operatives, Metal Working Industries j/	1960	100.0	17.1	16.3	0.8	82.9	76.3	6.6
	1970	100.0	18.7	16.0	2.7	81.3	72.4	8.9
Operatives, Lumber, Furniture, Stone, Clay and Glass Industries	1960	100.0	21.6	18.3	3.3	78.4	67.6	10.8
	1970	100.0	24.9	20.3	4.6	75.1	55.3	19.8

Table 38
(continued)

Percent Distribution of the Experienced Civilian Labor Force 16 Years and Over in Each Occupation, by Broad Age Group and Race: 1960, 1970

Male Workers

Occupation Title	Year	Total	Age 16-24			Age 25 and Over		
			Total	White	Non-White	Total	White	Non-White
GROUP IV, (continued)								
Operatives, Food and Tobacco Industries	1960	100.0	20.3	18.4	1.9	79.7	66.8	12.9
	1970	100.0	19.9	16.0	3.9	80.1	65.0	15.1
Operatives, Textiles, Apparel and Leather Industries	1960	100.0	20.1	18.1	2.0	79.9	75.2	4.7
	1970	100.0	26.6	21.9	4.7	73.4	66.0	7.4
Operatives, Non-Manufacturing Industries, Total	1960	100.0	15.6	14.1	1.5	84.4	77.1	7.3
	1970	100.0	21.4	17.7	3.7	78.6	69.9	8.7
Shipping and Receiving Clerks, Messengers and Office Boys	1960	100.0	23.9	21.0	2.9	76.1	61.9	14.2
	1970	100.0	30.1	25.5	4.6	69.9	58.1	11.8
Services, Total	1960	100.0	19.5	14.5	5.0	80.5	68.4	12.1
	1970	100.0	28.6	23.8	4.8	71.4	56.6	14.8
Guards and Watchmen, Crossing Guards and Bridge Tenders	1960	100.0	3.5	3.5	0.0	96.5	93.5	3.0
	1970	100.0	8.2	7.1	1.1	91.8	80.7	11.1
Housekeepers and Babysitters	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Waiters and Counter and Fountain Workers	1960	100.0	40.8	32.9	7.9	59.2	44.7	14.5
	1970	100.0	56.5	51.2	5.3	43.5	25.2	18.3
Hospital Attendants	1960	100.0	23.3	12.1	11.2	76.7	49.1	27.6
	1970	100.0	44.9	34.7	10.2	55.1	36.7	18.4
Laborers, Metal Working Industries k/	1960	100.0	18.6	15.8	2.8	81.4	59.4	22.0
	1970	100.0	21.4	17.8	3.6	78.6	60.1	18.5
GROUP V, TOTAL	1960	100.0	23.7	18.1	5.6	76.3	52.4	23.9
	1970	100.0	35.4	31.0	4.4	64.6	46.8	17.8
Non-Farm Laborers, Total	1960	100.0	24.1	19.6	4.5	75.9	53.2	22.7
	1970	100.0	38.6	34.0	4.6	61.4	45.1	16.3
Laborers, Lumber, Furniture, Stone, Clay and Glass Industries	1960	100.0	21.7	14.5	7.2	78.3	55.8	22.5
	1970	100.0	22.4	19.7	2.7	77.6	57.9	19.7
Laborers, Non-durable Mfg., Incl. Chemical, Petroleum, etc.	1960	100.0	22.9	18.3	4.6	77.1	58.5	18.6
	1970	100.0	31.2	26.2	5.0	68.8	53.9	14.9
Construction Laborers	1960	100.0	18.7	15.0	3.7	81.3	55.5	25.8
	1970	100.0	25.9	22.7	3.2	74.1	52.0	22.1
Laborers, Non-Manufacturing Industries	1960	100.0	28.0	23.9	4.1	72.0	49.9	22.1
	1970	100.0	45.5	40.2	5.3	54.5	40.3	14.2
Farm Laborers - Paid	1960	100.0	30.3	22.9	7.4	69.7	50.7	19.0
	1970	100.0	32.8	29.0	3.8	67.2	49.4	17.8
Personal Services, Total	1960	100.0	17.4	10.9	6.5	82.6	51.8	30.8
	1970	100.0	15.9	10.4	5.5	84.1	58.8	25.3
Cooks	1960	100.0	15.7	12.0	3.7	84.3	63.9	20.4
	1970	100.0	43.1	37.5	5.6	56.9	40.9	16.0
Kitchen Workers	1960	100.0	38.8	24.8	14.0	61.2	42.6	18.6
	1970	100.0	72.6	64.9	7.7	27.4	17.1	10.3
Janitors and Sextons	1960	100.0	13.6	9.1	4.5	86.4	58.5	27.9
	1970	100.0	22.5	19.0	3.5	77.5	56.3	21.2
Cleaners, Charwomen, Porters, Chambermaids and Elevator Operators	1960	100.0	19.6	10.0	9.6	80.4	35.4	45.0
	1970	100.0	28.5	21.9	6.6	71.5	43.7	27.8
Laundry and Dry Cleaning Operatives	1960	100.0	15.5	8.6	6.9	84.5	55.2	29.3
	1970	100.0	17.4	14.8	2.6	82.6	55.6	27.0
Private Household, n.e.c	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---

Footnotes

Table 38

a/ Includes physicians, dentists, medical and dental technicians, and all other health occupations classified as professional.

b/ Includes all other professional and technical workers, not elsewhere classified.

c/ Includes all other clerical and kindred workers, not elsewhere classified, except shipping and receiving clerks, messengers and office boys.

d/ Includes policemen, firemen, marshals and constables, sheriffs and bailiffs.

e/ Includes electricians, brickmasons, excavtaing, grading, and road machinery operators, plumbers and pipefitters, and structural metalworkers.

f/ Includes all other craftsmen and foremen, not elsewhere classified, except those in Status Group IV.

g/ Includes barbers, bartenders, practical nurses, attendants, recreation and amusement, ushers, and all other service workers not elsewhere classified.

h/ Includes operatives not elsewhere classified in the following non-durable goods industries: paper and allied products, printing and publishing, chemicals and allied products, petroleum and coal products, rubber and plastic products, not specified non-durable manufacturing.

i/ Includes taxi drivers, bus drivers, rail conductors, subway motormen, mine motormen, railroad brakemen, railroad switchmen, boatmen and canalmen, and sailors and deck hands.

j/ Includes operatives, not elsewhere classified, in the following industries: metal industries, machinery, except electrical, electrical machinery, professional and photographic equipment, miscellaneous manufacturing.

k/ Same industrial distribution as for operatives in footnote j.

Table 39

Percent Distribution of the Experienced Civilian Labor Force 16 Years and Over in Each Occupation, by Broad Age Group and Race: 1960, 1970

Female Workers

Occupation Title	Year	Total	Age 16-24			Age 25 and Over		
			Total	White	Non-White	Total	White	Non-White
TOTAL, EXPERIENCED CIVILIAN LABOR FORCE	1960	100.0	18.4	16.5	1.9	81.6	71.0	10.6
	1970	100.0	23.9	21.2	2.7	76.1	66.4	9.7
GROUP I, TOTAL	1960	100.0	13.0	12.4	0.6	87.0	80.6	6.4
	1970	100.0	19.2	18.0	1.2	80.8	72.9	7.9
Engineers	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Teachers, Excluding College	1960	100.0	10.5	10.1	0.4	89.5	82.5	7.0
	1970	100.0	17.8	16.7	1.1	82.2	73.2	9.0
Medical Personnel [a/]	1960	100.0	15.8	14.7	1.1	84.2	77.5	6.7
	1970	100.0	19.9	19.1	0.8	80.1	72.7	7.4
Other Professional and Technical Workers [b/]	1960	100.0	14.2	13.7	0.5	85.8	80.6	5.2
	1970	100.0	20.6	19.2	1.4	79.4	72.7	6.7
GROUP II, TOTAL	1960	100.0	22.8	22.0	0.8	77.2	74.3	2.9
	1970	100.0	27.9	25.5	2.4	72.1	67.8	4.3
Managers, Officials and Proprietors, Non-Farm	1960	100.0	2.7	2.7	0.0	97.3	93.0	4.3
	1970	100.0	7.6	6.7	0.9	92.4	87.4	5.0
Clerical, Total	1960	100.0	26.5	25.6	0.9	73.5	70.6	2.9
	1970	100.0	31.2	28.3	2.9	68.8	64.3	4.5
Bookkeepers	1960	100.0	19.5	19.4	0.1	80.5	79.6	0.9
	1970	100.0	16.5	15.5	1.0	83.5	81.7	1.8
Secretaries, Stenographers, Typists	1960	100.0	31.5	30.3	1.2	68.5	66.1	2.4
	1970	100.0	34.4	31.7	2.7	65.6	62.6	3.0
Office Machine Operators	1960	100.0	25.6	24.4	1.2	74.4	70.5	3.9
	1970	100.0	35.0	31.0	4.0	65.0	58.1	6.9
Telephone Operators	1960	100.0	26.6	26.0	0.6	73.4	72.0	1.4
	1970	100.0	40.0	32.6	7.4	60.0	56.7	3.3
Cashiers	1960	100.0	25.5	25.2	0.3	74.5	72.4	2.1
	1970	100.0	37.7	35.0	2.7	62.3	57.1	5.2
Postal Clerks, Mail Carriers	1960	100.0	5.1	5.1	0.0	94.9	89.8	5.1
	1970	100.0	16.0	9.9	6.1	84.0	63.4	20.6
Other Clerical, n.e.c. [c/]	1960	100.0	25.0	23.9	1.1	75.0	71.0	4.0
	1970	100.0	29.6	26.5	3.1	70.4	64.1	6.3
Sales, Total	1960	100.0	18.5	17.6	0.9	81.5	79.4	2.1
	1970	100.0	23.5	22.3	1.2	76.5	73.7	2.8
Retail Clerks	1960	100.0	19.3	18.5	0.8	80.7	78.7	2.0
	1970	100.0	27.0	25.7	1.3	73.0	70.0	3.0
Other Sales	1960	100.0	14.4	13.5	0.9	85.6	83.1	2.5
	1970	100.0	13.4	12.5	0.9	86.6	84.4	2.2
Policemen, Firemen, etc. [d/]	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
GROUP III, TOTAL	1960	100.0	12.6	10.7	1.9	87.4	78.4	9.0
	1970	100.0	20.6	18.5	2.1	79.4	69.9	9.5
Craftsmen and Foremen, Total	1960	100.0	8.5	7.3	1.2	91.5	86.6	4.9
	1970	100.0	14.3	12.6	1.7	85.7	77.8	7.9
Foremen, n.e.c.	1960	100.0	2.5	2.5	---	97.5	95.0	2.5
	1970	100.0	7.2	6.3	0.9	92.8	85.7	7.1
Mechanics, Excluding Auto	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Machinists	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---

Note: Percentage not shown where base number is less than 50,000.

Table 39
(continued)

Percent Distribution of the Experienced Civilian Labor Force 16 Years and Over in Each Occupation, by Broad Age Group and Race: 1960, 1970

Female Workers

Occupation Title	Year	Total	Age 16-24			Age 25 and Over		
			Total	White	Non-White	Total	White	Non-White
GROUP III, (continued)								
Metal Working Crafts, Excluding Mechanics, Machinists	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Carpenters	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Electricians, Brickmasons, Excavating Operators, etc. e/	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
All Other Craftsmen, n.e.c. f/	1960	100.0	9.7	8.2	1.5	90.3	83.5	6.8
	1970	100.0	15.7	14.2	1.5	84.3	75.8	8.5
Farmers, Farm Managers and Unpaid Workers, Total	1960	100.0	6.0	2.8	3.2	94.0	84.8	9.2
	1970	100.0	2.9	2.9	0.0	97.1	87.1	10.0
Barbers, Bartenders, Practical Nurses, etc. g/	1960	100.0	16.2	13.9	2.3	83.8	71.2	12.6
	1970	100.0	27.5	25.0	2.5	72.5	61.9	10.6
Operatives, Total	1960	100.0	12.2	11.1	1.1	87.8	82.4	5.4
	1970	100.0	18.2	15.7	2.5	81.8	73.3	8.5
Deliverymen, Routemen	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Checkers, Examiners and Inspectors	1960	100.0	10.1	9.0	1.1	89.9	84.6	5.3
	1970	100.0	13.8	11.5	2.3	86.2	81.0	5.2
Operatives, Non-Durable Mfg., Incl. Chemicals, Petroleum, etc. h/	1960	100.0	14.8	13.8	1.0	85.2	79.5	5.7
	1970	100.0	24.2	21.3	2.9	75.8	64.3	11.5
Operatives, Transport Equipment Manufacturing	1960	100.0	5.7	4.3	1.4	94.3	88.5	5.8
	1970	100.0	14.9	13.2	1.7	85.1	72.7	12.4
GROUP IV, TOTAL	1960	100.0	19.4	17.0	2.4	80.6	71.7	8.9
	1970	100.0	23.7	20.2	3.5	76.3	65.4	10.9
Craftsmen, Total	1960	100.0	9.1	6.1	3.0	90.9	84.8	6.1
	1970	100.0	16.6	16.6	0.0	83.4	77.8	5.6
Auto Mechanics	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Construction Painters, Plasterers, Cement and Concrete Finishers, Roofers, Paperhangers	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Transport Operatives, Total	1960	100.0	5.2	2.6	2.6	94.8	84.5	10.3
	1970	100.0	12.5	10.9	1.6	87.5	82.0	5.5
Truck and Tractor Drivers	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Auto Service and Parking Attendants	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Taxi Drivers, Bus Drivers, etc. i/	1960	100.0	0.0	0.0	0.0	100.0	90.5	9.5
	1970	100.0	9.4	8.4	1.0	90.6	85.3	5.3
Other Operatives, Total	1960	100.0	13.2	11.6	1.6	86.8	79.1	7.7
	1970	100.0	18.6	14.8	3.8	81.4	71.3	10.1
Packers	1960	100.0	18.2	14.7	3.5	81.8	73.1	8.7
	1970	100.0	19.5	16.4	3.1	80.5	70.5	10.0
Welders, Flamecutters	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Operatives, Metal Working Industries j/	1960	100.0	13.3	11.5	1.8	86.7	79.8	6.9
	1970	100.0	17.8	14.8	3.0	82.2	73.2	9.0
Operatives, Lumber, Furniture, Stone, Clay and Glass Industries	1960	100.0	8.9	8.9	0.0	91.1	79.7	11.4
	1970	100.0	35.7	26.2	9.5	64.3	48.8	15.5

Table 39

(continued)

Percent Distribution of the Experienced Civilian Labor Force 16 Years and Over in Each Occupation, by Broad Age Group and Race: 1960, 1970

Female Workers

Occupation Title	Year	Total	Age 16-24			Age 25 and Over		
			Total	White	Non-White	Total	White	Non-White
GROUP IV, (continued)								
Operatives, Food and Tobacco Industries	1960	100.0	12.1	9.8	2.3	87.9	68.4	19.5
	1970	100.0	19.2	13.2	6.0	80.8	65.7	15.1
Operatives, Textiles, Apparel and Leather Industries	1960	100.0	13.6	12.7	0.9	86.4	80.6	5.8
	1970	100.0	17.8	13.6	4.2	82.2	73.3	8.9
Operatives, Non-Manufacturing Industries, Total	1960	100.0	8.1	6.0	2.1	91.9	83.5	8.4
	1970	100.0	18.9	16.1	2.8	81.1	67.5	13.6
Shipping and Receiving Clerks, Messengers and Office Boys	1960	100.0	34.1	34.1	---	65.9	65.9	---
	1970	100.0	24.2	18.5	5.7	75.8	62.9	12.9
Services, Total	1960	100.0	28.9	25.3	3.6	71.1	60.3	10.8
	1970	100.0	31.6	28.4	3.2	68.4	56.3	12.1
Guards, Watchmen, Crossing Guards and Bridge Tenders	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Housekeepers and Babysitters	1960	100.0	27.7	23.6	4.1	72.3	56.4	15.9
	1970	100.0	25.1	22.0	3.1	74.9	53.9	21.0
Waiters and Counter and Fountain Workers	1960	100.0	27.6	24.7	2.9	72.4	66.2	6.2
	1970	100.0	36.7	34.5	2.2	63.3	58.3	5.0
Hospital Attendants	1960	100.0	22.2	18.2	4.0	77.8	60.6	17.2
	1970	100.0	26.3	20.7	5.6	73.7	53.0	20.7
Laborers, Metal Working Industries k/	1960	100.0	22.6	22.6	0.0	77.4	51.6	25.8
	1970	100.0	25.8	22.6	3.2	74.2	54.8	19.4
GROUP V, TOTAL	1960	100.0	12.0	5.8	6.2	88.0	43.6	44.4
	1970	100.0	13.3	8.7	4.6	86.7	51.4	35.3
Non-Farm Laborers, Total	1960	100.0	26.0	20.4	5.6	74.0	53.6	20.4
	1970	100.0	30.8	22.6	8.2	69.2	53.8	15.4
Laborers, Lumber, Furniture, Stone, Clay and Glass Industries	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Laborers, Non-Durable Mfg., Incl. Chemical, Petroleum, etc.	1960	100.0	25.0	19.4	5.6	75.0	69.4	5.6
	1970	100.0	26.4	17.0	9.4	73.6	56.6	17.0
Construction Laborers	1960	---	---	---	---	---	---	---
	1970	---	---	---	---	---	---	---
Laborers, Non-Manufacturing Industries	1960	100.0	29.8	22.8	7.0	70.2	43.9	26.3
	1970	100.0	35.0	29.0	6.0	65.0	51.3	13.7
Farm Laborers - Paid	1960	100.0	32.1	18.5	13.6	67.9	35.8	32.1
	1970	100.0	40.9	29.6	11.3	59.1	25.3	33.8
Personal Services, Total	1960	100.0	10.1	4.4	5.7	89.9	44.0	45.9
	1970	100.0	11.1	6.9	4.2	88.9	52.0	36.9
Cooks	1960	100.0	5.6	2.8	2.8	94.4	71.1	23.3
	1970	100.0	7.5	4.4	3.1	92.5	75.8	16.7
Kitchen Workers	1960	100.0	19.9	12.6	7.3	80.1	62.8	17.3
	1970	100.0	24.0	20.1	3.9	76.0	59.2	16.8
Janitors and Sextons	1960	100.0	2.6	1.3	1.3	97.4	70.7	26.7
	1970	100.0	15.1	10.1	5.0	84.9	66.9	18.0
Cleaners, Charwomen, Porters, Chambermaids and Elevator Operators	1960	100.0	9.1	3.1	6.0	90.9	46.7	44.2
	1970	100.0	11.7	7.0	4.7	88.3	53.3	35.0
Laundry and Dry Cleaning Operatives	1960	100.0	12.7	7.6	5.1	87.3	52.6	34.7
	1970	100.0	13.5	8.3	5.2	86.5	52.8	33.7
Private Household, n.e.c.	1960	100.0	10.9	4.2	6.7	89.1	27.3	61.8
	1970	100.0	7.7	3.2	4.5	92.3	29.2	63.1

Footnotes

Table 39

a/ Includes physicians, dentists, medical and dental technicians, and all other health occupations classified as professional.

b/ Includes all other professional and technical workers, not elsewhere classified.

c/ Includes all other clerical and kindred workers, not elsewhere classified, except shipping and receiving clerks, messengers and office boys.

d/ Includes policemen, firemen, marshals and constables, sheriffs and bailiffs.

e/ Includes electricians, brickmasons, excavating, grading, and road machinery operators, plumbers and pipefitters, and structural metalworkers.

f/ Includes all other craftsmen and foremen, not elsewhere classified, except those in Status Group IV.

g/ Includes barbers, bartenders, practical nurses, attendants, recreation and amusement, ushers, and all other service workers not elsewhere classified.

h/ Includes operatives not elsewhere classified in the following non-durable goods industries: paper and allied products, printing and publishing, chemicals and allied products, petroleum and coal products, rubber and plastic products, not specified non-durable manufacturing.

i/ Includes taxi drivers, bus drivers, rail conductors, subway motormen, mine motormen, railroad brakemen, railroad switchmen, boatmen and canalmen, and sailors and deck hands.

j/ Includes operatives, not elsewhere classified, in the following industries: metal industries, machinery, except electrical, electrical machinery, professional and photographic equipment, miscellaneous manufacturing.

k/ Same industrial distribution as for operatives in footnote j.

This pattern of concentration in "youth-type" occupations was generally retained for the large cohort of young workers who began their work careers in the decade of the 1960's. However, whereas large numbers of girls and younger women were able to find jobs in various clerical and sales occupations, many young men found employment -- whether by choice or necessity -- in the lower-status laborer and service-type jobs, which we have classified in Group V. These occupations are characterized, normally, by extremely high turnover rates. In addition, the generally favorable labor market conditions of the 1960's, combined with the reductions in barriers against employment of Negroes in higher-status occupations, had resulted in a large net outflow of both white and non-white adult workers from these occupations to higher-wage jobs.*

These high replacement needs were augmented, moreover, by requirements for an expanded work force in various personal service occupations, and in laborer jobs in non-manufacturing industries: Thus, among the Group V

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* These observations are based on the results of a cohort analysis of net occupational shifts between 1960 and 1970, for male workers in the experienced civilian labor force who were in the age group 25-44 years in 1960. A multiple regression analysis of the net changes in the number of male workers in each occupation in this age cohort (adjusted for net separations from the male labor force in this age group over the decade) was made, using the following independent variables: overall employment change in occupation, 1960-70 (EMP); full-time earnings in occupation in 1960 (EARN) and occupational status, based on our percentile rankings (STAT). The regression explained 55% of the variance (R^2) in net occupational mobility for this group:

$$\ln \text{MOBIL} = -5.0136 + \underset{(2.96)}{.0763 \ln\text{EMP}} + \underset{(1.93)}{.4892 \ln \text{EARN}}$$
$$+ \underset{(1.62)}{.1129 \ln \text{STAT}}$$

The employment change and earnings variables were significant at the 95% level; the status variable at the 90% level. (A log-linear form was used to minimize colinearity between the earnings and status variables.)

occupations which, therefore, experienced very sharp increases in their proportion of male youthful workers between 1960 and 1970 were cooks and kitchen workers, janitors and other building or cleaning service occupations, and non-manufacturing laborers.

An additional source of labor supply in certain of the Group V occupations, consisted of adult white women -- a population group which also contributed substantially to overall labor force growth in the 1960's. White women workers, aged 25 years and over, accounted for increased proportions of the female work force in the following occupations: non-manufacturing laborers (excluding construction); cooks; cleaners, charwomen, chambermaids and allied building service occupations; and private household workers, not elsewhere classified. (Table 39.)

Trends in Percentage of Non-White Workers by Occupation

As shown in Table 40, the overall percentage of non-white workers in Group V occupations declined from 36.5% in 1960 to 28.3% in 1970. The reduction was particularly sharp among non-white women: In 1960, 51% of the female labor force in Group V jobs consisted of non-white women, reflecting their heavy concentration in domestic service work, in farm labor and in building and cleaning service occupations. This was reduced to about 40% by 1970. This sharp overall reduction in the proportion of non-white women in Group V occupations was due, in part, to divergent trends in labor force growth among the Group V occupations, and, in part, to pronounced declines in the proportion of non-white women in specific occupations. Thus the female labor force in domestic service and in hired farm labor, which had included the highest concentrations of non-white women in 1960, declined sharply over the decade, whereas the labor force in certain other Group V occupations such as food service, which employed smaller proportions of non-whites had grown over the decade. An examination of the trend in non-white percentages among women workers in the specific Group V occupations indicates significant declines in about half of these occupations, with no significant change in most of the remainder. Among the latter was domestic work (excluding babysitters) which -- unlike other personal service occupations -- did not succeed in attracting an increased proportion of white younger workers.

In the case of male workers, the percentage of non-whites in Group V occupations declined in each of the specific occupations for which data are available, with particularly sharp reductions in their proportions among building service occupations and kitchen workers. For all Group V occupations, the

Table 40

Percent Non-Whites in Each Occupation and Status Group, by Sex: 1960, 1970

Occupation Title	Both Sexes		Male		Female	
	1960	1970	1960	1970	1960	1970
TOTAL, EXPERIENCED CIVILIAN LABOR FORCE	10.8	11.1	9.8	9.9	12.9	12.9
STATUS GROUP I	5.1	6.8	3.8	5.3	7.1	9.1
Engineers	1.5	3.5	1.5	3.3	---	---
All Other Professional and Technical Workers a/	4.2	6.0	3.7	7.3	5.7	8.1
Teachers, Excluding College	7.7	9.2	8.5	6.9	7.4	10.2
Medical Personnel b/	6.1	7.6	3.4	6.3	7.9	8.2
STATUS GROUP II	3.4	5.9	3.2	5.0	3.7	6.8
Bookkeepers	1.2	3.2	2.4	5.5	1.0	2.8
Secretaries, Stenographers, Typists	3.7	6.0	6.7	9.3	3.6	5.9
All Other Sales Workers, Excl. Retail Clerks	1.8	3.0	1.5	3.0	3.5	3.2
Managers, Officials, Proprietors	2.4	3.4	2.1	2.9	4.3	5.9
All Other Clerical and Kindred Workers c/	5.6	9.3	5.8	9.2	5.3	9.4
Office Machine Operators	5.2	11.2	5.5	11.9	5.1	10.9
Telephone Operators	1.9	11.2	---	---	2.0	10.7
Policemen, Firemen, etc. d/	3.3	5.0	2.9	4.6	---	---
Sales Clerks, Retail Trade	2.9	4.8	3.0	5.9	2.9	4.3
Cashiers	2.3	7.8	2.0	6.8	2.4	8.0
Postal Clerks, Mail Carriers	12.3	18.3	13.1	15.9	5.1	26.7
STATUS GROUP III	6.8	8.1	6.2	7.3	10.9	11.6
Foremen, n.e.c.	1.7	5.3	1.6	5.1	2.5	7.9
All Other Craftsmen e/	4.4	7.8	4.1	7.6	7.6	9.7
Mechanics, Excluding Auto	5.9	6.0	5.9	4.8	---	---
Deliverymen, Routemen	9.1	9.8	9.4	9.7	---	---
Metalworking Crafts, Excl. Mechanics, Machinists	5.3	4.1	5.4	4.0	---	---
Farmers, Farm Managers, Unpaid Family Workers	7.6	4.3	7.0	3.5	12.4	9.8
Electricians, Brickmasons, Excavating Machine Operators, etc. f/	5.3	6.9	5.3	6.7	---	---
Machinists	4.5	6.3	4.3	6.5	---	---
Checkers, Examiners	5.2	8.8	4.0	9.9	6.4	7.5
Operatives, Chemical, Petroleum Industries, etc. g/	7.1	13.0	7.2	12.5	6.7	15.0
Barbers, Bartenders, Practical Nurses, etc. h/	13.6	12.5	11.7	11.4	14.9	13.0
Operatives, Transport Equipment Mfg.	13.2	17.4	14.1	18.2	7.2	14.0
Carpenters	6.7	7.2	6.7	7.2	---	10.0
STATUS GROUP IV	11.7	13.9	12.0	13.6	11.3	14.5
Taxi Drivers, Bus Drivers, etc. i/	15.0	16.0	16.1	18.1	7.4	6.3
Auto Mechanics	8.2	8.8	8.2	8.7	---	---
Non-Manufacturing Operatives, Total j/	9.1	13.1	8.8	12.4	10.2	15.4
Auto Service and Parking Attendants	13.8	6.1	14.0	6.1	---	---
Operatives, Metal Working Industries k/	7.7	11.5	7.4	11.4	8.6	11.9

Note: Percentages not shown where base numbers are less than 50,000.

Table 40

(continued)

Percent Non-Whites in Each Occupation and Status Group, by Sex: 1960, 1970

Occupation Title	Both Sexes		Male		Female	
	1960	1970	1960	1970	1960	1970
STATUS GROUP IV (continued)						
Guards and Watchmen, Crossing Guards and Bridge Tenders	4.8	12.4	3.0	12.1	---	---
Housekeepers and Babysitters	20.0	25.6	---	---	20.1	24.8
Waiters, Counter and Fountain Workers	11.2	8.8	22.4	22.0	9.2	7.3
Shipping and Receiving Clerks, Messengers and Office Boys	16.0	17.1	17.2	16.6	8.3	19.7
Laborers, Metal Working Industries 1/	24.9	19.9	24.8	19.8	---	---
Operatives, Food and Tobacco Industries	16.9	19.6	14.7	18.9	21.8	21.1
Construction Painters, Plasterers, Cement and Concrete Finishers, Roofers, Paperhangers	11.6	13.4	11.7	13.7	---	---
Hospital Attendants	25.9	26.3	38.8	28.6	21.2	26.3
Truck and Tractor Drivers	14.9	13.8	14.8	13.8	---	---
Operatives, Textiles, Apparel, Leather Industries	6.7	12.8	8.0	11.7	6.5	13.1
Packers	12.6	16.4	13.2	21.3	12.2	13.1
Welders, Flamecutters	7.6	10.0	7.6	9.5	---	---
Operatives, Lumber, Furniture, Stone, Clay and Glass Industries	13.8	24.2	14.1	23.7	11.4	26.7
STATUS GROUP V	36.5	28.3	29.5	21.4	50.2	39.5
Laborers, Selected Non-Manufacturing Industries m/	26.5	20.1	26.2	20.2	33.3	18.1
Janitors and Sextons	31.9	23.8	32.4	23.1	28.0	28.1
Cooks	25.4	20.0	24.1	20.9	26.1	19.6
Construction Laborers	29.6	25.6	29.5	25.3	---	---
Laborers, Lumber, Furniture, Stone, Clay, and Glass Industries	29.7	22.8	29.8	22.6	---	---
Laborers, Non-Durable Mfg. Incl. Chemicals, Petroleum, etc. n/	22.0	21.5	23.2	20.2	11.1	28.1
Farm Laborers - Paid	28.7	23.7	26.3	22.0	45.7	41.3
Kitchen Workers	27.9	20.0	32.6	21.5	24.7	19.4
Laundry and Dry Cleaning Operators	38.8	36.2	36.2	29.2	39.9	39.3
Cleaners and Charwomen, Porters, Chambermaids, and Elevator Operators	52.2	37.9	54.6	32.9	50.2	39.8
Private Household, n.e.c.	68.2	67.1	37.1	45.8	68.5	67.7

Footnotes

Percent Non-Whites in Each Occupation and Status Group, by Sex: 1960, 1970

a/ Includes all other professional and technical workers, not elsewhere classified.

b/ Includes physicians, dentists, medical and dental technicians, and all other health occupations classified as professional.

c/ Includes all other clerical and kindred workers not elsewhere classified.

d/ Includes policemen, firemen, marshals and constables, sheriffs and bailiffs. bailiffs.

e/ Includes all other craft workers not elsewhere classified.

f/ Includes electricians, brickmasons, excavating, grading, and road machinery operators, plumbers and pipefitters, and structural metalworkers.

g/ Includes operatives not elsewhere classified in the following non-durable goods industries: paper and allied products, printing and publishing, chemicals and allied products, petroleum and coal products, rubber and plastic products, not specified non-durable manufacturing.

h/ Includes barbers, bartenders, practical nurses, attendants, recreation and amusement, ushers, and all other service workers not elsewhere classified.

i/ Includes taxi drivers, bus drivers, rail conductors, subway motormen, mine motormen, railroad brakemen, railroad switchmen, and boatmen and canalmen, and sailors and deck hands.

j/ Includes operatives not elsewhere classified in the following industries: communications, utilities, public administration, agriculture, forestry, fishery, mining, construction, finance, insurance and real estate, wholesale and retail trade, personal services, entertainment and recreation services, business and repair services, professional and related services.

k/ Includes operatives, not elsewhere classified, in the following industries: metal industries, machinery, except electrical, electrical machinery, professional and photographic equipment, miscellaneous manufacturing.

l/ Same industrial distribution as for operatives in footnote k.

m/ Includes laborers in all non-manufacturing industries, except construction.

n/ Includes laborers in all non-durable goods industries.

percentage of non-whites among male workers declined from 29.5% in 1960 to 21.4% in 1970.

The net withdrawal of non-whites from Group V occupations was accomplished by increases in the percentage of non-whites in each of the four higher occupational status groups. Among the Group I and II occupations, non-whites made sharp relative gains in participation in some occupations in which they had been least represented in the past, such as engineers, bookkeepers, telephone operators and cashiers. Among the Group III and Group IV occupations, the largest increases in non-white participation occurred among manufacturing operatives, particularly in those manufacturing industries with high concentrations in the South, (e.g., textiles, lumber, furniture, chemical and petroleum) as well as in transportation equipment and other metal working industries. Non-white gains in participation in most of the craftsmen and mechanical occupations were generally smaller than in the operatives groups. Only a few Group III-IV occupations experienced reductions in the percentage of non-white workers. The latter included farmers and farm managers, auto service and parking attendants, truck drivers, metalworking craftsmen, laborers in metalworking industries, waiters and counter and fountain workers, and the group including barbers, bartenders, beauticians and practical nurses.

Trends in Educational Level Composition -- Thus far, our summary of changes in characteristics of workers, by occupation, has not taken into account the effects of the sharp educational upgrading of the labor force. Between 1960 and 1970, the percentage of workers in the experienced civilian labor force who were high school graduates had increased from 50.7% to 64.5%. As a result, the average educational achievement of workers increased in virtually all occupations, continuing the long-term trend. Relative gains in the percentage of high school graduates were most pronounced in the middle and lower-level occupational status groups, as indicated in Table 41. Thus, in Group III occupations, the proportion of high school graduates rose from about 40% in 1960 to 55% in 1970, or by more than one-third; among Group IV occupations, the increase was from 31% in 1960 to 44%, or by about two-fifths, and in Group V occupations, the corresponding percentage rose from 21% to 35%, or by approximately two-thirds. Increases in the proportion of high school graduates in the latter group were most pronounced in occupations which experienced a relatively large inflow of younger white workers, such as kitchen workers and non-manufacturing laborers. Conversely, declining occupations such as domestic workers and laundry workers received the smallest increases in high school graduates.

Net Shifts in Composition of Group V Labor Force -- After having examined the trends in labor force composition of occupations in relation to each of the major socio-demographic characteristics, a composite analysis of net labor force gains and losses, by sex, race, educational level and broad age group is presented in Table 42, for the Group V category, as a whole. From this summary, several major conclusions concerning the changing sources of manpower for these low-status occupations can be drawn:

1. There was a large scale net exodus of non-white workers, primarily adults, from low status occupations. Between 1960 and 1970, the number of non-whites in these occupations declined by 630,000, or 21%. Of this net loss, 550,000 consisted of workers 25 years and over; 80,000 of workers, 16-24 years.

Table 41

Percent of Experienced Civilian Labor Force, 16 Years and Over, with 12 or More Years of Education by Detailed Occupation Group, Subgroup, and Sex: 1960, 1970

Occupation Title	Both Sexes		Male		Female	
	1960	1970	1960	1970	1960	1970
TOTAL, EXPERIENCED CIVILIAN LABOR FORCE	50.7	64.5	47.6	62.1	56.9	68.4
STATUS GROUP I	92.4	95.0	92.2	93.9	92.7	94.9
Engineers	93.1	96.4	93.2	96.4	---	---
All Other Professional and Technical Workers a/	89.9	93.6	90.1	93.7	89.3	93.3
Teachers, Excluding College	98.5	97.5	98.6	98.5	98.4	97.1
Medical Personnel b/	90.3	94.2	95.2	97.0	87.0	92.8
STATUS GROUP II	70.2	80.7	67.6	79.4	73.3	81.9
Bookkeepers	83.0	86.8	86.1	88.0	82.3	86.6
Secretaries, Stenographers, Typists	90.0	92.0	78.7	86.4	90.4	92.2
All Other Sales Workers, Excl. Retail Clerks	69.8	80.4	72.0	81.6	55.3	75.5
Managers, Officials, Proprietors	65.4	79.2	65.7	79.7	64.0	76.6
All Other Clerical and Kindred Workers c/	73.3	81.1	68.7	78.5	77.2	83.1
Office Machine Operators	76.4	87.5	87.2	91.7	74.0	85.8
Telephone Operators	62.8	83.0	---	---	62.0	83.5
Policemen, Firemen, etc. d/	60.3	81.1	60.1	81.4	---	---
Sales Clerks, Retail Trade	55.3	66.8	61.0	68.2	51.6	66.2
Cashiers	59.5	66.6	68.3	71.4	57.2	65.0
Postal Clerks, Mail Carriers	72.4	80.3	72.7	79.6	69.2	82.4
STATUS GROUP III	39.5	54.9	39.2	54.5	41.8	56.9
Foremen, n.e.c.	49.6	62.3	50.1	63.2	43.0	51.8
All Other Craftsmen e/	47.0	58.5	47.1	58.9	46.6	54.4
Mechanics, Excluding Auto	41.0	57.4	41.0	57.5	35.7	47.4
Deliverymen, Routemen	47.7	54.9	47.2	54.9	---	---
Metalworking, Crafts, Excl. Mechanics, Machinists	40.4	54.3	40.6	55.1	---	---
Farmers, Farm Mgrs., and Unpaid Farm Workers	29.9	45.4	29.7	46.1	32.0	40.3
Electricians, Brickmasons, Excavating Machine Operators, etc. f/	37.2	52.4	37.1	52.3	60.0	62.5
Machinists	46.0	59.6	46.4	60.4	16.7	35.3
Checkers, Examiners	43.9	56.3	49.4	64.6	38.7	46.4
Operatives, Non-Durable Mfg. Incl. Chemicals, Petroleum g/	35.4	47.5	37.4	49.1	29.5	43.2
Barbers, Bartenders, Practical Nurses, etc. h/	43.7	63.6	36.6	52.2	48.7	68.4
Operatives, Transport Equipment Mfg.	36.6	51.6	37.3	52.0	31.9	49.6
Carpenters	30.3	42.3	30.3	42.3	100.0	50.0
STATUS GROUP IV	30.6	43.6	30.5	43.9	30.9	43.1
Taxi Drivers, Bus Drivers, etc. i/	35.2	46.0	32.2	43.9	71.4	54.7
Auto Mechanics	34.9	49.1	35.0	49.2	---	---
Non-Manufacturing Operatives, Total j/	32.5	46.2	32.3	47.6	33.2	41.0
Auto Service and Parking Attendants	42.1	47.6	42.2	48.3	---	---
Operatives, Metal Working Industries k/	33.0	48.1	33.5	48.7	31.7	47.1

Note: Percentages not shown where base numbers are less than 50,000.

Table 41

(continued)

Percent of Experienced Civilian Labor Force, 16 Years and Over, with 12 or More Years of Education
by Detailed Occupation Group, Subgroup, and Sex: 1960, 1970

Occupation Title	Both Sexes		Male		Female	
	1960	1970	1960	1970	1960	1970
STATUS GROUP IV (continued)						
Guards and Watchmen, Crossing Guards and Bridge Tenders	30.8	45.0	27.8	43.6	---	---
Housekeepers and Babysitters	26.6	37.7	---	---	26.6	37.2
Waiters, Counter and Fountain Workers	41.3	52.5	40.1	52.5	41.5	52.5
Shipping and Receiving Clerks, Messengers, and Office Boys	42.5	61.4	39.8	60.2	61.4	67.6
Laborers, Metal Working Industries 1/	27.6	42.6	27.5	43.2	---	---
Operatives, Food and Tobacco Manufacturing	26.0	36.8	28.2	39.9	21.3	30.7
Construction Painters, Plasterers, Cement and Concrete Finishers, Roofers, Paperhangers	29.5	38.7	28.8	38.7	---	---
Hospital Attendants	38.1	56.9	39.7	65.1	37.5	55.5
Truck and Tractor Drivers	26.7	39.0	26.8	38.9	---	---
Operatives, Textiles, Apparel, Leather Industries	19.8	27.8	21.2	23.9	19.1	29.0
Packers	30.4	40.2	29.9	43.0	30.8	35.5
Welders, Flamecutters	28.5	42.8	28.5	42.6	---	---
Operatives, Lumber, Furniture, Stone, Clay and Glass Industries	21.1	26.2	21.8	27.0	16.5	35.9
STATUS GROUP V	20.8	34.8	21.1	37.4	20.1	29.8
Laborers, Selected Non-Manufacturing Industries m/	25.1	44.2	24.8	44.0	31.6	47.4
Janitors and Sextons	21.8	35.5	21.8	36.1	26.7	31.7
Cooks	27.7	38.5	27.3	46.3	27.9	34.7
Construction Laborers	19.0	33.6	19.0	33.9	---	---
Laborers, Lumber, Furniture, Stone, Clay and Glass Industries	17.6	33.3	16.9	32.7	---	---
Laborers, Non-Durables, Incl. Chemicals, Petroleum, etc. n/	22.8	35.8	22.9	36.6	22.2	31.6
Farm Laborers - Paid	15.8	27.0	15.8	26.3	15.4	34.6
Kitchen Workers	20.9	43.1	28.7	41.7	15.7	43.8
Laundry and Dry Cleaning Operatives	24.1	28.8	27.6	39.8	22.7	23.8
Cleaners and Charwomen, Porters, Chambermaids, and Elevator Operators	22.0	31.4	23.2	34.8	21.0	30.1
Private Household, n.e.c.	16.7	19.1	---	---	17.0	18.8

Footnotes

Percent of Experienced Civilian Labor Force, 16 Years and Over, with 12 or More Years of Education by Detailed Occupation Group, Subgroup, and Sex: 1960, 1970

a/ Includes all other professional and technical workers, not elsewhere classified.

b/ Includes physicians, dentists, medical and dental technicians, and all other health occupations classified as professional.

c/ Includes all other clerical and kindred workers not elsewhere classified.

d/ Includes policemen, firemen, marshals and constables, sheriffs and bailiffs.

e/ Includes all other craft workers not elsewhere classified.

f/ Includes electricians, brickmasons, excavating, grading, and road machinery operators, plumbers and pipefitters, and structural metalworkers.

g/ Includes operatives not elsewhere classified in the following non-durable goods industries: paper and allied products, printing and publishing, chemicals and allied products, petroleum and coal products, rubber and plastic products, not specified non-durable manufacturing.

h/ Includes barbers, bartenders, practical nurses, attendants, recreation and amusement, ushers, and all other service workers not elsewhere classified.

i/ Includes taxi drivers, bus drivers, rail conductors, subway motormen, mine motormen, railroad brakemen, railroad switchmen, boatmen and canalmen, sailors and deck hands.

j/ Includes operatives not elsewhere classified in the following industries: communications, utilities, public administration, agriculture, forestry, fishery, mining, construction, finance, insurance and real estate, wholesale and retail trade, personal services, entertainment and recreation services, business and repair services, professional and related services.

k/ Includes operatives, not elsewhere classified, in the following industries: metal industries, machinery, except electrical, electrical machinery, professional and photographic equipment, miscellaneous manufacturing.

l/ Same industrial distribution as for operatives in footnote k.

m/ Includes laborers in all non-manufacturing industries, except construction.

n/ Includes laborers in all non-durable goods manufacturing industries.

Table 42

Net Changes in Group V Labor Force, 1960-1970, by Sex, Race, Age Group and Educational Level

(000)

Age and Years of School Completed	Total, Both Sexes			Male			Female		
	Total	White	Non-White	Total	White	Non-White	Total	White	Non-White
TOTAL, AGES 16 AND OVER	160	790	-630	70	460	-370	80	340	-260
Less than 12 Years	-1040	-350	-690	-840	-400	-430	-210	50	-260
12 Years and Over	1200	1140	60	910	860	60	290	290	---
AGES 16 - 24	740	830	-80	670	720	-50	60	100	-40
Less than 12 Years	30	130	-100	30	100	-70	-10	20	-30
12 Years and Over	710	700	20	640	610	20	70	80	-10
AGES 25 AND OVER	-580	-40	-550	-600	-280	-320	30	250	-220
Less than 12 Years	-1070	-470	-590	-870	-500	-360	-200	30	-230
12 Years and Over	490	440	50	270	230	40	220	210	10

Note: Detail may not add to group totals due to rounding.

(The latter reduction, in the face of the large growth in the overall size of this age group between 1960 and 1970, reflected -- of course -- a particularly sharp reduction in the proportion of younger non-whites who entered low status occupations in the course of the decade.) About three-fifths of this net loss of 630,000 non-whites was among men, mainly reflecting reductions in non-farm laborers, and two-fifths among women, mainly from domestic service and farm labor.

2. A second source of loss consisted of white adult male workers, 25 years and over, whose participation in Group V occupations declined by 280,000 or 10% over the decade, reflecting mainly declines in various laborer occupations, both farm and non-farm. Thus, the combined losses of non-whites and of adult white males from Group V occupations amounted to more than 900,000.

3. These losses were more than offset by gains from two sources: a large inflow of young white workers (mainly males) and an increase in the number of adult white women. Between 1960 and 1970, the number of white male youths aged 16-24 years in Group V occupations increased by 720,000 or 73%, while the number of young white women rose by 100,000 or about 50%, over the decade. In addition, there was a net increase of adult white women, 25 years and over in Group V occupations of 250,000 or 21%.

4. These shifts in labor force composition were accompanied by a particularly sharp increase in the proportion of high school graduates in the Group V labor force. Reflecting the general trend towards lengthening of schooling, the white entrants into the labor force (both youth and female adults) consisted predominantly of high school graduates, while the group

experiencing reductions consisted mainly of persons with less than 12 years of schooling. Thus, there was a net gain of 1,200,000 high school graduates in Group V occupations and a net loss 1,040,000 non-graduates. As a result, the percentage of high school graduates among Group V workers rose from 21% to 35% between 1960 and 1970.

G. The Growth of Part-Time Employment

Our analyses of the net changes in labor force composition, by occupation, between 1960 and 1970, have defined "labor supply" thus far, in terms of numbers of workers, rather than in terms of the labor force time, or hours of work, provided by different elements of the working population. However, the large-scale shift in composition of the Group V labor force from non-white (mainly adult workers) to white youth and adult white women also reflected a significant shift, in many of these occupations, from reliance upon full-time "career" members of the labor force, to increased utilization of secondary workers who -- in many cases -- were only available for part-time or intermittent employment.

We have already seen that young workers aged 16-24 years, and adult women, in combination, accounted for a large proportion of the net overall growth of the labor force between 1960 and 1970. This was accompanied by a parallel growth in the number and proportion of part-time workers. One measure of this trend is provided by statistics, based upon the Current Population Survey which indicate an increase in the percentage of employed workers, working part-time for "non-economic reasons," from 7.1 million, or 10.1% of the total in April

1960, to 10.7 million, or 13.1%, in April 1970. As shown in Table 43, the proportions of part-time workers have tended to be highest both in the less-skilled white collar occupations (clerical and sales work) and in the less-skilled blue collar or service occupations. Between 1960 and 1970, the sharpest relative gains in employment of part-time workers occurred among non-farm laborers, service workers and clerical workers, with much smaller increases in other categories. Thus, a relatively large proportion of the increase in part-time employment was concentrated in lower-status (Group V type) occupations.

The sources of part-time manpower for the latter occupations are indicated in Table 44, based on our tabulations of decennial Census data for 1960 and 1970. (It should be noted that the latter statistics are not directly comparable to those shown in Table 43, since the Census data include as "part-time " all workers employed less than 35 hours during the Census enumeration week for either economic reasons or other reasons. Nevertheless, the broad patterns of change between 1960 and 1970, based on these two measures, were found to be reasonably consistent.) Among the Group V occupations shown in Table 44, the sharpest gains in the proportion of part-time workers occurred among non-farm laborers, cooks and kitchen workers, cleaners and other building service workers, and laundry and dry cleaning operatives. The largest component of the part-time labor force in most of these occupations consisted of 16-24 year olds. By 1970, nearly 22% of all non-farm laborers (exclusive of those in durable goods manufacturing industries) consisted of 16-24 year olds who worked at these jobs for less than 35 hours during

Table 43

Part-Time Employment for Non-Economic Reasons[b] as Percent of Total Persons at Work, by Major Census Occupational Group and Sex: April 1960, April 1970

Occupation Group	Percentage Part-Time					
	Total, Both Sexes		Male		Female	
	1960 [a]	1970	1960 [a]	1970	1960 [a]	1970
TOTAL, 16 YEARS AND OVER	10.1	13.1	5.5	8.5	19.6	25.8
Professional, Technical and Kindred Workers	9.1	12.7	4.7	6.8	16.8	22.1
Managers and Proprietors, Excluding Farm	3.7	4.1	2.2	2.6	12.9	12.5
Clerical Workers	10.9	19.1	6.0	12.2	13.2	21.4
Sales Workers	20.1	27.7	8.9	14.1	36.4	47.1
Craftsmen and Foremen	2.6	3.1	2.4	2.8	11.1	15.9
Operatives	4.7	6.7	3.9	5.9	6.8	8.5
Non-Farm Laborers	9.1	19.3	9.0	19.2	15.4	22.9
Service Workers, Excluding Private Household	18.0	30.7	10.9	21.6	24.2	36.6
Private Household Workers	35.3	58.2	[c]	[c]	35.6	58.3
Farm Workers, Total	18.6	21.7	11.9	17.9	54.8	43.0
Farm Managers and Proprietors	11.2	15.1	9.2	13.4	59.1	56.3
Farm Laborers and Foremen	28.5	30.2	16.8	25.8	54.1	40.7

Source: Unpublished tables from Current Population Survey

[a] Data adjusted to exclude 14-15 year olds, based on ratios derived from the March 1966 Current Population Survey.

[b] Includes those with a job and working less than 35 hours during survey week for the following reasons: labor dispute, bad weather, own illness, vacation, demands of home housework, school, no desire for full-time work, and full-time worker only during peak season.

[c] Base numbers too small to allow calculation of a meaningful percentage.

Table 44

Percent Distribution of Employed Workers in Group V Occupations, by Hours Worked in Census Week, by Age Group and Sex for Part-time Workers: 1960 and 1970

Occupation	Percent Distribution					
	Total Employed	Full-Time (35 Hours)	Part-Time			
			Total	Ages 16-24	Ages 25 and Over	
					Male	Female
Non-Farm Laborers, Excluding Durable Goods Manufacturing						
1960	100.0	80.2	19.8	10.5	8.5	0.8
1970	100.0	71.5	28.5	21.8	5.7	1.0
Farm Laborers (paid)						
1960	100.0	76.6	23.4	10.5	9.8	3.1
1970	100.0	75.0	25.0	13.7	7.0	4.3
Cooks and Kitchen Workers						
1960	100.0	77.8	22.2	7.1	1.5	13.6
1970	100.0	68.7	31.3	16.1	1.2	14.0
Janitors and Sextons						
1960	100.0	78.4	21.6	7.1	9.2	5.3
1970	100.0	77.3	22.7	12.5	6.3	3.9
Cleaners and Charwomen, Porters, Chambermaids and Elevator Operators						
1960	100.0	79.1	20.9	4.2	2.3	14.4
1970	100.0	71.1	28.9	7.1	1.9	19.9
Laundry and Dry Cleaning Operatives						
1960	100.0	87.3	12.7	2.2	1.1	9.4
1970	100.0	78.3	21.7	4.2	2.7	14.8
Private Household Workers, n.e.c.						
1960	100.0	53.6	46.4	3.9	1.0	41.5
1970	100.0	50.0	50.0	4.8	0.7	44.5

Sources: See text.

the Census week -- more than twice the corresponding proportion in 1960. The proportion of young part-time workers more than doubled, too, among cooks and kitchen workers, from 7.1% to 16.1%, and registered substantial increases in the cleaning and building service occupations, as well. Adult women, 25 years and over, also increased their proportion of part-time workers among cleaners and building service workers, as well as among laundry operatives and domestics. In the latter occupation, fully one-half of those employed in 1970, exclusive of housekeepers and babysitters, had worked less than 35 hours in the Census week.

Although the statistics on hours of work derived from the Census public-use sample do not warrant any detailed computations of labor force trends for specific occupations based on an equivalent "full time" labor force index, since they refer to hours worked in the Census enumeration week only, the data cited above, in combination with the CPS data for broader occupational groups, do support the following inferences:

(1) Occupations such as domestics and hired farm laborers, which experienced a sharp reduction in terms of numbers of workers, probably experienced an even sharper reduction, in terms of labor force man-years.

(2) Occupations such as non-farm laborers which, on balance, experienced little net change in number of workers probably declined significantly in terms of full-time man years available.

(3) Finally, those low status occupations, such as food service, whose numbers increased rapidly over the decade probably experienced a more moderate increase in man-years worked, when allowance is made for the increased utilization of part-time workers, mainly youth, in place of full-time adult workers.

H. The Newer Immigration

Immigration, which had been a negligible factor in labor force growth since the 1920's, increased moderately in the decade of the 1960's, as illustrated by the following summary statistics:

- Immigration of aliens, as recorded by the Immigration and Naturalization Service, increased from a total of 2.5 million in 1951-60 to 3.3 million in 1961-70.[4]

- Net civilian immigration, as estimated by the Bureau of the Census, rose from 3.0 million in the 1950's to 3.9 million in the 1960's. This corresponded to a rate of 2.2 per 1,000 -- the highest rate for any decade since termination of mass immigration in the 1920's. (The latter statistics include, in addition to aliens admitted for permanent residence, allowances for net movements of resident aliens, such as foreign students and businessmen; net inflows of Puerto Ricans, entries of temporary workers and of "parolees," such as Cuban refugees; and net emigration of U.S. citizens.)[5]

This increased inflow more than offset separations from the labor force of foreign born workers residing here in 1960, and as a result, the percentage of foreign born workers in the U.S. experienced labor force, including Puerto Ricans, rose from 7.5% in 1960 to 8.4% in 1970, according to our tabulations based on the decennial Census public use tapes.

The composition of the immigrant population entering in the 1960's, although similar to that of immediately preceding decades, contrasted sharply with that of the earlier era of mass immigration into the United States, prior to enactment of the restrictive laws of the early 1920's. The "national origins" quota system, imposed on immigration from the Eastern hemisphere -- combined with the effects of the post-war prosperity in Western Europe -- had sharply curtailed the proportion of immigrants from Europe from an average of 80% of the total in the period 1901-30 to 53% in the 1950's and to 34% in the decade 1961-70. Immigration from Mexico, from the West Indies and from other Latin American countries had increased rapidly and accounted for 39% of all alien immigrant entries in the decade of the 1960's, as against only 22% in the 1950's and 6% in the 1901-30 period. (The 1965 amendments to the immigration law established an overall Western Hemisphere quota, for the first time; however, this quota did not become fully effective until 1968 and had a limited effect on the proportion of immigrants entering from Latin American countries during the decade as a whole.) Occupational preference systems, operating within the framework of quota limitations, which were reinforced by the 1965 amendments, had moreover contributed to a sharp upgrading in occupational and educational levels of the newer immigrants -- particularly in facilitating an increased inflow of highly-educated professional and technical workers. Thus, in sharp contrast to earlier periods such as 1901-10, when professional and technical workers constituted less than 2% of the total immigrant inflow, the proportion of professional and technical workers among immigrants with a reported occupation was 15.5% in 1961-60 and 23.0% in 1961-70. The latter percentage was twice as great as the percentage of professional and technical workers in the experienced civilian labor force in 1960 (Table 45). At the same time, the growing number of immigrants from Mexico and from other neighboring West Indies and Latin American countries (other than Cuba) continued to include a large proportion of workers with limited skills and educational backgrounds, as reflected in a higher-than-proportionate frequency, among the immigrant group, of such occupations as private household workers and laborers.

The above statistics refer to the occupation reported by immigrants at the time of entry and do not necessarily reflect the jobs occupied by such

Table 45

Occupational Distribution of Immigrants, 1951-60 and 1961-70,
Compared with Occupational Distribution of Experienced
Civilian Labor Force, 14 Years and Over, 1960

(Percent Distribution)

	Alien Immigrants 1/		Experienced Civilian Labor Force, 1960 2/
	1951-60	1961-70	
TOTAL, WITH OCCUPATION REPORTED	100.0	100.0	100.0
Professional and Technical	15.5	23.0	11.3
Managers, Officials and Proprietors, Non-Farm	4.5	4.5	8.5
Clerical and Sales	16.7	16.7	22.4
Craftsmen and Foremen	16.5	14.1	14.3
Operatives	14.1	11.1	20.0
Non-Farm Laborers	11.2	8.8	5.5
Service Workers, Excluding Private Household	5.9	7.4	8.9
Private Household Workers	7.9	8.7	2.8
Farm Occupations:			
Farmers and Farm Managers	4.1	1.8	3.9
Farm Laborers and Foremen	3.6	3.9	2.4

1/ Statistical Abstract of the United States, 1971, op. cit., p. 91.

2/ U.S. Census of Population, Occupational Characteristics, Table 1.

immigrants in the United States. To assess the impact of recent immigration upon the labor force in various occupations, tabulations were made of the distribution of foreign-born workers in 1960 and 1970 by occupation and region of origin based on the decennial Census sample public-use tapes. The proportions of foreign born workers in each occupation and occupational status group, based on these tabulations, are shown in Table 46 for all foreign born workers and, separately, for those born in Latin America, (i.e., in all Western Hemisphere countries other than Canada). The net changes in the proportion of foreign born workers in the experienced civilian labor force between 1960 and 1970 provide an indication of the relative occupational distribution of recent immigrants, although these changes were influenced, too, by separations from the labor force of foreign born workers (mainly drawn from older immigrant cohorts) and by net occupational mobility among foreign born workers over the decade.

An examination of the statistics for the foreign-born labor force, as a whole , reveals a much more favorable distribution, relative to the overall occupational distribution of the labor force, than indicated by our comparisons for earlier periods. In 1970, foreign born professional workers accounted for a larger-than-proportionate share of the labor force of medical and allied occupations and of engineers, and for about the same proportion in "all other" professional and technical occupations, as their overall percentage of the labor force. At the same time, foreign born workers also continued to account for a larger-than-proportionate share of the labor supply in various lower-status occupational groups, including operatives in low-wage manufacturing industries, farm laborers, and service workers, other than private household.

Table 46

Percent of Experienced Civilian Labor Force, 16 Years and Over, Born Outside the United States, By Selected Occupations: a/
1960, 1970

Occupation	Foreign Born Total	Born In Latin America	Born Elsewhere
EXPERIENCED CIVILIAN LABOR FORCE			
1960	7.5	0.6	6.9
1970	8.4	1.2	7.2
Status Group I			
Professional and Technical workers b/			
1960	6.6	0.4	6.2
1970	7.6	0.8	6.4
Engineers			
1960	7.0	0.0	7.0
1970	9.9	0.3	9.6
All Other Professional and Technical Workers, n.e.c.			
1960	7.1	0.3	6.8
1970	8.3	0.9	7.4
Teachers, Excluding College			
1960	3.0	0.3	2.7
1970	3.6	0.2	3.4
Medical Personnel c/			
1960	9.6	0.6	9.0
1970	10.1	1.6	8.5
Status Group II d/			
1960	6.4	0.3	6.1
1970	6.5	0.7	5.8
Managers, Officials, Proprietors, Total			
1960	8.4	0.3	8.1
1970	7.8	0.5	7.3
Clerical Workers, Total			
1960	5.1	0.4	4.7
1970	5.9	0.8	5.1
Secretaries, Typists, Stenographers			
1960	4.1	0.2	3.9
1970	6.4	0.9	5.5

-a-

Table 46

Continued

Percent of Experienced Civilian Labor Force, 16 Years and Over
Born Outside the United States, By Selected Occupations: a/
1960, 1970

Occupation	Total	Born in Latin America	Born Elsewhere
All Other Clerical c/			
1960	5.4	0.5	4.9
1970	5.6	0.8	4.8
Sales Workers, Total			
1960	6.9	0.3	6.6
1970	6.6	0.7	5.9
Sales Workers, Excluding Retail Clerks			
1960	6.4	0.3	6.1
1970	5.9	0.5	5.4
Sales Clerks, Retail Trade			
1960	7.4	0.3	7.1
1970	8.5	0.8	7.7
Status Group III			
1960	8.5	0.4	8.1
1970	7.8	1.0	6.8
Craftsmen and Foremen, Total			
1960	8.1	0.4	7.7
1970	7.5	1.1	6.4
Foremen, n.e.c.			
1960	5.0	0.1	4.9
1970	5.8	0.9	4.9
Craftsmen, n.e.c. f/			
1960	10.7	0.4	10.3
1970	9.3	1.1	8.2
Mechanics, Total			
1960	7.1	0.6	6.5
1970	5.8	1.0	4.8
Metal Working Craftsmen, Including Machinists			
1960	10.2	0.3	9.9
1970	9.0	0.1	8.9
Construction Craftsmen, Excluding Carpenters			
1960	7.7	0.5	7.2
1970	7.1	0.8	6.3

-b-

Table 46

Continued

Percent of Experienced Civilian Labor Force, 16 Years and Over
Born Outside the United States, By Selected Occupations: a/
1960, 1970

Occupation	Total	Born In Latin America	Born Elsewhere
Carpenters			
1960	7.0	0.2	6.8
1970	8.3	1.6	6.7
Farmers, Farm Managers, Unpaid Family Workers			
1960	8.3	0.3	8.0
1970	5.8	0.0	5.8
Barbers, Bartenders, Practical Nurses g/			
1960	11.5	0.9	10.4
1970	10.6	1.5	8.1
Checkers, Examiners			
1960	5.8	0.0	5.8
1970	5.5	1.1	4.4
Status Group IV			
1960	8.8	0.9	7.9
1970	10.0	3.4	6.6
Selected Operative Occupations, Total			
1960	9.3	1.0	8.3
1970	12.0	2.0	10.0
Operatives - Metal Working Industries h/			
1960	10.0	0.7	9.3
1970	9.5	1.8	7.7
Operatives - Non-Durable Goods i/			
1960	13.6	1.6	12.0
1970	16.1	2.8	13.3

-c-

Table 46

Continued

Percent of Experienced Civilian Labor Force, 16 Years and Over Born Outside the United States, By Selected Occupations: [a]
1960, 1970

Occupation	Total	Born In Latin America	Born Elsewhere
Truck and Tractor Drivers			
1960	3.0	0.5	2.5
1970	3.9	0.4	3.5
Packers			
1960	9.5	0.6	8.9
1970	11.7	2.3	9.4
Selected Service Occupations, Total			
1960	8.0	0.5	7.5
1970	8.9	1.5	7.4
Housekeepers and Baby-sitters			
1960	9.7	1.5	8.2
1970	10.4	2.7	7.7
Waiters, Counter and Fountain Workers			
1960	7.8	0.1	7.7
1970	9.6	1.0	8.6
Hospital Attendants			
1960	6.8	0.2	6.6
1970	7.3	1.8	5.5
Status Group V [j]			
1960	9.4	2.1	7.3
1970	8.8	2.5	6.3
Non-Farm Laborers, Total [k]			
1960	7.0	1.1 [l]	5.9
1970	6.3	1.5	3.8

-d-

Table 46

Continued

Percent of Experienced Civilian Labor Force, 16 Years and Over Born Outside the United States, By Selected Occupations: a/ 1960, 1970

Occupation	Total	Born In Latin America	Born Elsewhere
Farm Laborers - Paid			
1960	11.3	6.7	4.6
1970	12.2	7.6	4.6
Personal Services, Total			
1960	11.4	1.6	9.8
1970	11.0	3.0	8.0
Janitors and Sextons			
1960	11.2	0.8	10.4
1970	10.2	1.6	9.6
Cooks and Kitchen Workers			
1960	14.0	1.7	12.3
1970	11.1	2.0	9.1
Cleaners and Charwomen, Porters, Chambermaids, and Elevator Operators			
1960	11.2	0.8	10.4
1970	13.2	2.7	10.5
Laundry and Dry Cleaning Operatives			
1960	8.6	1.5	7.1
1970	12.3	2.9	9.4
Private Household Workers, n.e.c.			
1960	9.0	2.2	6.8
1970	8.3	2.5	5.8

Footnotes

Percent of Experienced Civilian Labor Force, 16 Years and Over, Born Outside the United States, by Selected Occupations: 1960, 1970

a/ Sources: Based on 1960 and 1970 1/1000 Census Public Use Samples, except as noted below.

Due to a coding omission, 300,000 taxi drivers and bus drivers were excluded from the 1960 tabulation. Also published decennial Census data for employed workers in the "non-farm laborer" occupation were used in place of the tabulated data on ECLF for this occupation for both 1960 and 1970, due to a mis-coding.

Note that "foreign born" is defined to include persons born in Puerto Rico and residing in mainland U.S.A. These were, however, included in the "born elsewhere" column.

b/ Includes all other professional and technical workers, not elsewhere classified.

c/ Includes physicians, dentists, medical and dental technicians, and all other health occupations classified as professional.

d/ Includes policemen, firemen, marshals and constables, sheriffs and bailiffs.

e/ Includes all other clerical and kindred workers not elsewhere classified.

f/ Includes all other craft workers not elsewhere classified.

g/ Includes barbers, bartenders, practical nurses, attendants, recreation and amusement, ushers, and all other service workers not elsewhere classified.

h/ Includes operatives, not elsewhere classified, in the following industries: metal industries, machinery, except electrical, electrical machinery, professional and photographic equipment, miscellaneous manufacturing.

i/ Includes operatives not elsewhere classified in the following non-durable goods industries: paper and allied products, printing and publishing, chemicals and allied products, petroleum and coal products, rubber and plastic products, not specified non-durable manufacturing.

j/ Data are weighted averages of foreign born ECLF 16+ in farm laborer and personal service categories, and of foreign born employed in non-farm laborer category.

k/ Data are percentages of employed foreign born to total employed rather than ECLF, used because of a coding error.

l/ Includes data for employed foreign born Mexicans only: other countries not available.

Whereas the overall percentages of foreign-born workers, by occupation, reflect the heterogeneous sources and skill levels of more recent immigrant groups, the separate data for workers born in Latin American countries reveal a more consistent pattern of differential concentration in low status occupations. Between 1960 and 1970, the number of workers in the experienced civilian labor force, excluding those with no specific occupation reported, who were born in Latin American countries rose from about 400,000 to 900,000. Of the latter total, over 200,000, or 22%, were in the Group V occupations, although these occupations, in 1970, accounted for only 14% of the total experienced civilian labor force. A similar concentration of Latin American born workers was evident in the Group IV class of occupations. As a result, whereas Latin American workers represented only 1.2% of all experienced civilian workers in 1970, they accounted for 2.5% or more of the labor force in the following occupations: hired farm laborers (7.6%), laundry and dry cleaning operatives (2.9%), operatives in non-durable goods manufacturing (2.8%), cleaners, charwomen and allied occupations (2.7%), and other private household workers (2.5%).

The above statistics, moreover, probably understate to a significant degree the participation by foreign workers, and particularly, those from Mexico and other Latin American countries, in the low-status labor force. The first, and most obvious source of this understatement consists of workers residing in Mexican border areas and who commute daily to jobs in Southern California and other border areas within the United States. A spot survey conducted by the Immigration and Naturalization Service in the late 1960's enumerated a total of 47,876 such border commuters: other estimates of such commuters range as high as 75,000.[6] About two-fifths of the commuters in 1967 were reported as working in agriculture; the balance, in a variety of non-farm pursuits including service jobs, as industrial and construction workers, or as domestics.[7]

In addition, there is a wide range of evidence indicating the presence in the United States population and labor force of large numbers of "illegal" aliens -- immigrants who entered the country illegally or who overstayed their authorized period as visitors, students, or other temporary entrants. The most tangible evidence of the extent of illegal immigration consists of the statistics on deportation of apprehended aliens, compiled by the Immigration and Naturalization Service. The number of such deportations rose from 465,000 in fiscal years 1961-65, to 1,142,000 in fiscal years 1966-70.[8] A very large percentage of these deportees consisted of Mexicans apprehended in the Southwest border states; however, increasing numbers of illegal aliens have been apprehended in other sections of the country, including the northeast and midwest. Exceptionally high rates of population growth in Mexico and elsewhere in Latin America, and the much higher wage levels in the United States even for unskilled labor, have served as strong inducements for illegal as well as legal immigration from these areas. Another major factor in the growth of illegal entries and deportations was the termination of the "bracero" program in 1964. This program, initiated during World War II, had provided for importation of contract Mexican agricultural laborers to meet the wartime farm labor shortage; it had been continued during the post-World War II period in response to demands of agricultural interests in the Southwest border region and was formally terminated when the labor market situation in that region could no longer justify such a program.

The contribution to labor supply of those aliens actually apprehended and deported in recent years has probably been modest. Most aliens have been apprehended in border areas after very brief stays of a few weeks or less: the statistics moreover apparently include large numbers of "repeaters". However, it is generally recognized that only a fraction of the "illegals" are actually apprehended. Based on a review of its operating experience and on certain necessarily arbitrary assumptions, the Immigration and Naturalization Service arrived at an estimate of approximately 1.0 million illegal aliens residing in the United States in early 1972, of whom about three-fourths (mainly Mexicans) were assumed to be illegal entrants and most of the remainder were individuals, such as tourists or students, who had overstayed their visas.[9] Manual Aragon, Jr., in a statement presented to the Commission on Population Growth and the American Future, arrived at an independent estimate of between one million and 1.5 million "illegal" residents in the United States of Mexican origins, based on his analysis of local INS reports and on an independent study by the Chicano Studies Department at California State College, Los Angeles.[10] A House Subcommittee, chaired by Representative Peter W. Rondino, Jr., conducted extensive hearings on the problem of illegal aliens during 1971-72 and concluded that: "although the number of illegal aliens in this country cannot be accurately measured, it is generally accepted that there are presently between one and two million aliens illegally in the United States."[11] In the following three years, "estimates" -- or guesses -- concerning the number of such aliens residing here have escalated. Thus, in February 1975, the Commissioner of the Immigration and Naturalization Service, advised the House Subcommittee on Immigration that: "We really don't know how many illegal aliens there are in this country. The estimates range from four million to twelve million: the actual number is probably somewhere in between -- perhaps about eight million or so."[12]

Irrespective of the precise number of illegal aliens in the United States, there is a general concensus among informed sources concerning certain relevant characteristics:

1. Such persons mainly enter the United States, or stay here illegally, to improve their economic status. A very large proportion are younger adults and are either working or seeking work.

2. Occupationally, such workers are heavily concentrated in the less-desirable unskilled or semi-skilled jobs, typically in menial service occupations, in farm labor or casual non-farm labor and in low wage manufacturing industries.

3. Geographically, the largest concentration of such workers consists of Mexicans in the Southwest border area. However, substantial numbers, including many West Indies immigrants, are apparently located in Eastern seaboard cities, e.g., New York City, Washington, D.C. and Miami, as well as in certain midwestern industrial cities, such as Chicago.

From the standpoint of our statistical analysis of occupational labor supply, it is reasonable to assume that most such illegal residents are not included in the official Census enumerations, or if counted, are not likely to accurately report their country of origin. Some confirmation of this assumption is provided by an analysis by Donald S. Akers of the Bureau of the Census, who derived estimates of net immigration from Mexico for the decade 1950-60 based on alternative sources, including: (1) official U.S. immigration statistics, (2) analysis of U.S. Census of Population statistics on the population born in Mexico, using a cohort survival method, (3) analysis of the Census statistics on the Spanish surname population in the five Southwestern states, also using a cohort-survival method, and (4) analysis of official Mexican census and vital statistics data, as an alternative method of arriving at the net outflow to the United States. His estimates of net immigration based on these four sources are shown below.13/

Source	Estimated Net Mexican Immigration, 1950-70
Immigration Statistics	313,000
U.S. Census	
Country of Birth	205.000
Spanish Surname	350,000
Mexican Census and Vital Statistics	473,000

Aker's analysis of the Mexican census and vital statistics, in comparison with the official U.S. immigration data, thus suggested that unrecorded (illegal) immigration from Mexico may have amounted to 150,000 in the decade of the 1950's. Akers further suggested that, because of improvements in coverage of Mexican population and vital statistics between 1950 and 1960, his estimate based on the latter data may have been biased downward. Although Akers cautiously avoided any definite conclusions from these data, it appears evident that the Census data based on country of origin, which resulted in an estimate 100,000 less than the official U.S. immigration statistics for the decade, do have a significant downward bias. Since the latter data served as our source for analysis of the foreign-born labor force by occupation, it is reasonable to assume that the size of the foreign born labor force in low status (Group V) occupations in 1970, as well as its growth between 1960 and 1970, were substantially greater than reflected in the Census counts for those years.

It should be noted that the problem of undercount of foreign born workers in the United States is a special aspect of the broader problem of incompleteness in Census enumerations. By use of a variety of demographic techniques, Jacob Siegal of the Bureau of the Census has estimated the total undercount in the 1970 Census at 5.3 million, or 2.5% of the total U.S. population, as compared to 2.7% in the 1960 Census and 3.3% in 1950. The degree of underenumeration has been consistently higher for Negroes, and particularly for adult Negro males, than for other defined population groups. Thus, Siegal estimates that the 1970 Census under-reported the number of Negro males aged 25-44 in the U.S. population by approximately 18.5% in 1960 and by 18.0% in 1970.[14/] Such non-enumerated persons, if in the labor force, are likely to be concentrated in unskilled, casual labor-types of jobs, and -- hence -- are likely to cause a particularly serious relative understatement of the labor force in the Group V occupations. However, Siegal's analysis suggests that the percentage of underenumeration in the 1960 and 1970 Censuses for the population of working age has been fairly stable, and may in fact have declined slightly. Thus, although the absolute magnitude of the labor force attached to Group V occupations is probably understated by the official Census data -- both in absolute numbers and in relation to other occupational groups -- there is no reason to believe that this factor has significantly biased our analysis of overall trends in the size of this labor force group or the shifts in its composition, by race, sex or age groups. In contrast, the limited available data on illegal immigration in the 1960's combined with indications of incomplete coverage of the number of "legal" workers here who were born in Mexico, point to a probably significant understatement of the growth of this particular component of the Group V labor force during the past decade.

I. Summary

In this chapter we have presented data on the changing composition of labor supply by occupation during 1960-70 from two separate -- but related -- perspectives. The first was the changes in occupational distribution of various social and demographic groups in the labor force, resulting in measures of overall changes in their respective occupational status. The second was the changes in composition of the labor force within occupations, or occupational groups. From either vantage point, it is evident that very significant changes occurred in the composition of the work force in many low-status occupations

The most significant of these changes was (1) extensive replacement of non-white workers, as well as of adult white men, in low status jobs by white young workers, particularly males; (2) a substantial improvement in occupational status of non-white workers over the decade, particularly among better educated younger workers, aged 16-24; (3) increased utilization of part-time workers in many of these occupations, including both students and adult women, and (4) an increase in the proportion of foreign born workers, mainly recent immigrants from Mexico and other Latin American countries, in low status occupations.

The first of these developments, reflected in a substantial exodus of black workers from the lowest status jobs and in significant increases in their participation in white collar occupations, may well be the most significant, in terms of its long-range social consequences. Some of the influences contributing to this breakthrough have been suggested by our analysis, namely, the progress made in closing their "educational attainment" gap in relation to white workers and the favorable labor market climate of the second half of the decade of the 1960's. Perhaps of equal importance was the catalytic impact of the civil rights movement of the 1960's and of resulting government and private initiatives in the field of equal employment opportunity. The net effect was the generation of a social and psychological climate among white workers and employers -- as well as among Negroes -- which was conducive to their increased acceptance in occupations and industries which had been effectively foreclosed to them in the past.

The second dynamic force at work was a direct consequence of the post-World War II baby boom, which -- predictably -- brought in its wake a record breaking number of youthful entrants into the labor force during the past decade. This new post-war generation was also the most "educated" generation in our history, as measured by the yardstick of years of schooling completed. However, the very fact that a large proportion of these youth continued their full-time education into their late teens and early twenties created a large supply of workers whose employment options were limited to the types of jobs amenable to part-time work schedules and which were geographically accessible to such youth. These youth, therefore, constituted a ready source of unskilled, casual labor for both low-level white collar and blue collar or service jobs, often serving as replacements for full-time adult non-white (as well as white) workers, who left these jobs in favor of better-paying jobs in higher-status occupations.

Finally, we have noted the increased role of the "newer" immigration, particularly from Mexico, the West Indies and other Latin American countries, as an additional source of manpower for low status occupations. Although the contribution of recent immigrants to the overall supply of lower status workers appears to have been modest at the national level -- even after allowing for some considerable underreporting in the Census statistics -- it is clear from collateral evidence that this manpower source has been much more significant in areas such as Southern California and New York City, to which these workers have gravitated in substantial numbers.

Before proceeding with an assessment of the manpower supply outlook in the next chapter, we should note some limitations in the scope of our analysis of the experience of the past decade. First, our analysis thus far has been largely based on data on net changes in the labor force, by occupation, between successive decennial Censuses, and has not examined the process by which these changes were accomplished. Secondly, we have not yet systematically attempted to relate these occupational labor force trends to other relevant labor market variables, such as trends in differential wages or unemployment by occupation. Phase II of our study will include efforts to analyze these variables within the broader framework of labor supply and labor market theory.

Chapter III
Footnotes

Trends in Occupational Labor Supply, 1960-70

1/ Based on estimates by Lebergott, decennial percentage increases in the total labor force, aged 10 years and over, were as follows: 1900-10, 28.9%; 1910-20, 11.0%; 1920-30, 17.4%; 1930-40, 15.3%; 1940-50, 16.3%. From Stanley Lebergott, op. cit., p. 510.

2/ The Social and Economic Status of Negroes in the United States, 1970, U.S. Department of Commerce, Bureau of the Census, Special Studies, BLS Report No. 394, Current Population Reports, Series P-23, No. 38, p. 74.

3/ For recent evidence on the extent to which employment in these sectors is negatively correlated with the general level of demand for labor, see Arthur M. Okun, "Upward Mobility in A High-Pressure Economy." Brookings Papers on Economic Activity, 1, 1973, Table 2.

4/ Statistical Abstract, 1971, p. 89.

5/ Irene B. Taeuber, "Growth of the Population of the United States in the Twentieth Century," in Demographic and Social Aspects of Population Growth, Commission on Population Growth and the American Future Research Reports, Vol. 1, p. 122.

6/ Charles B. Keely, "Immigration: Considerations on Trends, Prospects and Policy," Demographic and Social Aspects of Population Growth, Commission on Population Growth and the American Future Research Reports, Vol. 1, p. 183.

7/ Hearings before the Select Commission on Western Hemisphere Immigration. The Impact of Commuter Aliens..., Part 1, p. 8, January 1968.

8/ 1971 Annual Report, Immigration and Naturalization Service, Table 23.

9/ Hearings before Subcommittee No. 1 of the Committee on the Judiciary, House of Representatives, 92nd Congress, 2nd Session, on Illegal Aliens, Part 5, March 1972, pp. 1323-1325.

10/ Testimony by Manuel J. Aragon, Jr., before the Commission on Population Growth and the American Future, Los Angeles, May 3, 1971.

11/ House of Representatives, 92nd Congress, 2nd Session, Report on Amending the Immigration and Nationality Act, and for Other Purposes, Report No. 92-1306, August 17, 1972, p. 3.

12/ Statement by Leonard F. Chapman, Jr., Commissioner, Immigration and Naturalization Service before the House Subcommittee on Immigration, Citizenship and International Law, February 4, 1975.

13/ Donald S. Akers, "Immigration Data and National Population Estimates for the United States," in Demography, Vol. 4, No. 1, 1967, p. 269.

14/ Jacob S. Siegal, Estimates of Coverage of the Population by Sex, Race and Age in the 1970 Census. Paper presented at the annual meeting of the Population Association of America, New Orleans, April 26, 1973.

Chapter IV

Labor Supply and Occupational Wage Differentials

A. Introduction

The preceding chapter has identified a number of significant changes in the composition of the labor force of lower-level occupations during the 1960-70 decade. We have not yet, however, attempted an assessment of the labor market implications of these shifts. For example, was the outflow of non-whites from lower level jobs -- and their replacement by youthful white workers as well as by adult white women -- accompanied by any significant change in the overall labor supply-labor demand balance in these occupations, as reflected in such indicators as changes in relative wages or in relative unemployment levels? Similarly, it is moot to investigate the effects, if any, of the educational upgrading of the labor force in many lower-level occupations upon differential wages in such occupations. From such assessments we may hopefully derive insights as to the implications of foreseeable future socio-demographic trends upon the labor market for low-level occupations.

The classical economists' models of labor market behavior are, unfortunately, of limited assistance in such an analysis. These theories, as noted in Chapter I, tended to explain the structure of occupational wage differentials in terms of such variables as: (1) differences in training and educational investments required; (2) differences in non-pecuniary aspects of occupations, and (3) obstacles to free labor mobility among occupations from such factors as apprenticeship or licensing rules, governmental regulations, discriminatory practices, etc. These explanations were, however, cast within the framework of a static equilibrium analysis, designed to define the long-term wage structure, rather than its shorter-term variations. On the premise that supply of various categories of labor is relatively fixed over short periods of time, economists -- such as Marshall -- have postulated that fluctuations in labor demand, rather than labor supply factors, are the primary determinants of short-term shifts in relative wages.

Neither the long-term equilibrium model, nor the premise of stability in short term labor supply, have provided an adequate framework for explanation of observed occupational wage trends over a period of decades. Beginning with Paul Douglas' landmark study in the 1920's, a number of institutional economists conducted extensive empirical research on longer term trends in the occupational wage structure. These earlier studies, covering a period of decades prior to the post-World War II era, generally concluded that there had been a significant trend towards narrowing of occupational wage differentials. One general explanation advanced was that the sharp rise in educational attainment of the labor force had increased the supply of workers qualified for entry into the white collar occupations and into other preferred skilled occupations at a faster rate than the growth of demand in these occupations. Concurrently, the stoppage of large scale immigration -- although partially offset in its impact by the increased internal migration of black workers -- was cited as a major factor checking the growth in labor supply for low-level jobs. These forces tending to narrow wage differentials appeared to be particularly operative in periods of full or over-full employment, such as World War II and the early postwar years.[1]

In contrast to this longer-term trend, studies focussing on post-World War II experience have more typically revealed a fairly stable pattern of occupational wage differences or some widening of these differences, depending upon the time periods and occupations selected for study. Thus, an analysis by Sackley and Gavett of occupational wage trends for broad categories of white collar and blue collar workers, covering the period 1959-1969, arrived at the following conclusions:

> "In summation, occupational wage information from BLS and other sources generally confirms the trend indicated by Census data, which show a slightly faster rise in the 1960's in the pay for white-collar jobs requiring extended educational preparation than in wages for blue-collar and white-collar jobs requiring little or no training. Certain low-paid occupations are an exception in that their pay rose at better than the average increase for the overall category."[2]

These trends were attributed to a combination of labor supply and labor demand influences: On the demand side, there had been a relatively large increase in employment in certain skilled occupations, such as professional and clerical workers. On the supply side, the authors cited such factors as: (1) the shortage of trained professionals and

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[1] For a discussion of these longer-term trends, see particularly: Paul Douglas, Real Wages in the United States, 1890-1920; Lloyd G. Reynolds and Cynthia H. Tafts, The Evolution of Wage Structure, pp. 355-358; and Melvin W. Reder, "The Theory of Occupational Wage Differentials," American Economic Review, December 1955.

[2] Arthur Sackley and Thomas W. Gavett, "Blue-Collar/White-Collar Pay Trends Analysis of Occupational Wage Differences," Monthly Labor Review, June 1971, p. 10.

managers as a consequence of lower birth rates during the 1930's; (2) increased labor force participation of women; and (3) the large-scale entry into the labor force during the 1960's of the less trained segments of the postwar "baby boom" generation, which augmented the supply of labor for low-wage occupations -- whereas those members of this population group who had gone on to college did not begin to enter the full-time labor force in large numbers until the close of the decade.

From this necessarily brief summary, it will be apparent that most of the empirical assessments of occupational wage trends have identified changes in the composition and characteristics of the work force as important determinants of change in the structure of occupational wage differences. However, these analyses have suffered from common limitations due to inadequacies of historical wage data, of related data on characteristics of the work force in various occupations and of other relevant labor market parameters. Thus, explanations offered for either narrowing of wage differentials (prior to the 1950's) or of stable or widening wage differentials (since the 1950's) have typically been advanced as reasonable inferences or hypotheses, rather than as empirically verified conclusions.

In the present chapter we shall attempt to further explore this relationship, in the context of our special interest in lower-level occupations. Two sets of analyses have been conducted for this purpose. The first further examines 1960-70 occupational wage trends for broad occupational groups, utilizing CPS data on earnings of full-time year round workers as the measure of wage rate change. Our objective in this analysis is to determine the degree of association between relative wage changes and such factors as

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relative employment growth and changes in the characteristics of the work force of various occupations. The second is a more intensive analysis of relative wages in selected lower-level occupations, based on a cross-sectional study of inter-area differences in such wages in 1969. In the latter analysis, we have again attempted to determine the extent to which variations in the characteristics of the available work force, as distinct from other relevant and measurable labor market factors, have been associated with inter-area variations in relative wages.

B. Occupational Wage Trends, 1960-70

Prior to the 1950's, occupational wage statistics were available only for a small number of occupations, such as the building and printing trades, and were often further limited to those in the unionized sector of the occupation. Empirical studies of longer-term occupational wage trends were therefore limited in scope and typically focused on "skilled-unskilled" wage differentials in selected blue collar occupations or industries. During the past two decades, the Census Bureau has conducted annual sample surveys of income of families and individuals, which have provided data on earnings of workers by occupation. These data were further refined, beginning in 1958, to show separately the median earnings of men and women workers employed full-time (35 hours or more) on a year round basis, i.e., 50-52 weeks, classified by the occupation of the longest job held by such workers. The latter data can be used as an approximate measure of occupational wage differences (at least among full-time workers) and thus provide -- for the first time -- a series covering the full range of occupations of the labor force. One major limitation of this data source, however, is the fact that, because of sample size, these occupational earnings data are available only for large occupational groupings or sub-groups. Thus, for any comparison of 1960-70 trends, full-time year round earnings data have been published for only 19 separate occupational groups, for men workers, and for 13 groups, for women. These correspond to the standard Census major occupation groups, with some further limited disaggregation within such large groups as operatives, male craftsmen and female clerical workers.

These trends are summarized in Table 47 for men and women by the major Census occupation groups. Relative earnings indexes have been computed for 1960 and 1970, which express the median earnings of men and women in a given occupation group to the corresponding medians for all male and female year round full-time workers. Inspection of this table indicates a high degree of stability in the overall structure of occupational wage differentials between the two years. The rank ordering of earnings by major occupation group for men and women remained virtually unchanged between 1960 and 1970 and the standard deviations of occupational earnings -- based on the full range of 19 male occupations and 13 female occupations -- were found not to differ significantly between 1960 and 1970. Nevertheless, there were some significant inter-group differences in relative earnings growth rates, as measured (in column 5) by the ratio of the 1970 relative earnings index to that for 1960. Generally, relative earnings growth was greater-than-average both among certain of the more highly-paid occupations, such as professional and managerial workers, and among some of the lowest paid occupation groups, such as male workers in farm occupations and female workers in private household and sales jobs. In contrast, blue collar workers, as

Table 47

Median Annual Earnings of Year Round Full-Time Workers and Indexes of Change in Relative Earnings by Occupation Group, Male and Female: 1960-1970

Occupation Group	Earnings 1/		Relative Earnings Indexes		
	1960 (1)	1970 (2)	1960 (3)	1970 (4)	Change (1960=100) (5)
Males, Total	$5,368	$8,966	100.0	100.0	100
Professional and Technical Workers	7,115	12,255	132.5	136.7	103
Managers, Proprietors and Officials, Non-Farm	6,648	11,665	123.8	130.1	105
Clerical Workers	5,291	8,652	98.6	96.1	97
Sales Workers	5,842	9,765	108.8	108.9	100
Craftsmen and Foremen	5,826	9,253	108.5	103.2	95
Operatives	4,997	7,644	93.1	85.3	92
Laborers, excl. Mine and Farm	4,017	6,462	74.8	72.1	96
Service Workers, excl. Private Household	4,088	6,964	76.2	77.7	102
Farmers and Farm Managers	2,004	3,881	37.3	43.3	116
Farm Laborers and Foremen	1,686	3,355	31.4	37.4	119
Females, Total	3,257	5,323	100.0	100.0	100
Professional and Technical Workers	4,358	7,850	133.8	147.5	110
Managers, Proprietors and Officials, Non-Farm	3,514	6,369	107.9	119.7	111
Clerical Workers	3,575	5,539	109.8	104.1	95
Sales Workers	2,389	4,174	73.3	78.4	107
Operatives	2,969	4,465	91.2	83.9	92
Private Household Workers	1,156	1,990	35.5	37.4	105
Service Workers, excl. Private Household	2,340	3,875	71.8	72.8	101

1/ U.S. Bureau of the Census, Current Population Reports - Consumer Income, Series P-60, No. 39. Earnings data not shown for occupation groups with low sample size, e.g., male private household workers.

well as clerical workers of both sexes, experienced a less-than-average growth in relative earnings. Earnings of male and female service workers, other than those in private households, grew at an approximately average rate, as did earnings of men sales workers.

An initial hypothesis we attempted to test was one which presumed that these differential occupational wage changes could be "explained" by differential changes in labor demand, as reflected in actual employment trends. This hypothesis is consistent with one assuming a high degree of occupational mobility in labor supply and that wages do operate -- under these conditions -- as an effective mechanism for allocation of labor among various categories of occupations. Relative employment growth indexes, as derived in Table 48, have been compared with the corresponding earnings growth indexes, in Table 50. A direct comparison of the rank ordering of these two indexes provides very little support for this hypothesis. Using a crude measure of rank correspondence of ± 1, only five out of ten male occupational groups, and one out of seven female occupation groups, satisfied this test. Among the male occupations, the two farm occupational groups -- farmers and farm managers, and farm laborers and foremen -- had experienced the most rapid employment decline and also the most rapid increase in relative earnings. Conversely, craftsmen ranked second in employment growth but next to last, in terms of relative earnings growth. Among female oocupations, clerical workers ranked second in employment growth but next to last in earnings growth, whereas the reverse pattern applied to women in the managerial occupations. Women private household workers, whose employment had dropped sharply over the decade, had at the same time, experienced an

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Table 48

Annual Average Employment and Relative Employment Growth Indexes by Occupation Group and Sex: 1960-1970

Occupation Group	Employment (000)[1/]		Employment Index, 1970 (1960=100)	Relative Employment Growth Index
	1960	1970		
Males, Total	44,485	48,960	110.0	100
Professional and Technical Workers	4,768	6,841	143.5	130
Managers, Proprietors and Officials, Non-Farm	5,967	6,968	116.8	106
Clerical Workers	3,154	3,482	110.4	100
Sales Workers	2,707	2,763	102.1	93
Craftsmen and Foremen	8,338	9,826	117.8	107
Operatives	8,652	9,605	111.0	101
Laborers, excl. Mine and Farm	3,583	3,589	100.1	91
Service Workers, excl. Private Household	2,873	3,245	112.9	103
Farmers and Farm Managers	2,670	1,670	62.7	57
Farm Laborers and Foremen	1,728	928	53.7	49
Females, Total	22,196	29,666	133.7	100
Professional and Technical Workers	2,706	4,298	158.8	119
Managers, Proprietors and Officials, Non-Farm	1,099	1,320	120.1	89
Clerical Workers	6,629	10,233	154.4	115
Sales Workers	1,695	2,091	123.4	92
Operatives	3,333	4,304	129.1	97
Private Household Workers	2,171	1,519	70.0	52
Service Workers, excl. Private Household	3,260	4,909	150.6	113

[1/] Source: U.S. Bureau of Labor Statistics, Employment and Earnings.

Table 49

Unemployment Rates and Indexes of Change in Unemployment Rate Differentials for Workers in the Experienced Civilian Labor Force by Occupation Group, Male and Female: 1960-1970

Occupation Group	Unemployment Rates[1]		Relative Unemployment Indexes		
	1960 (1)	1970 (2)	1960 (3)	1970 (4)	Change (1960=100) (5)
Males, Total	4.9	3.9	100.0	100.0	100
Professional and Technical Workers	1.7	1.8	34.7	46.2	133
Managers, Proprietors and Officials, Non-Farm	1.3	1.2	26.5	30.8	116
Clerical Workers	3.8	3.4	77.6	87.2	112
Sales Workers	2.7	2.7	55.1	69.2	126
Craftsmen and Foremen	5.2	3.8	106.1	97.4	92
Operatives	7.0	5.9	142.9	151.3	106
Service Workers, excl. Private Household	5.9	5.1	120.4	130.8	109
Farm Laborers and Foremen	6.0	6.0	122.4	153.8	126
Laborers, excl. Farm and Mine	12.4	9.4	253.1	241.0	95
Females, Total	5.1	5.0	100.0	100.0	100
Professional and Technical Workers	1.7	2.3	33.3	46.0	138
Managers, Proprietors and Officials, Non-Farm	1.7	2.1	33.3	42.0	126
Clerical Workers	3.8	4.3	74.5	86.0	115
Sales Workers	5.2	5.3	102.0	106.0	104
Operatives	10.5	9.5	205.9	190.9	92
Private Household Workers	4.9	4.3	96.1	86.0	89
Service Workers, excl. Private Household	6.1	5.7	119.6	114.0	95

1/ 1960: U.S. Bureau of Labor Statistics, Employment and Earnings, November 1961, p. 103.

2/ 1970: U.S. Bureau of Labor Statistics, Handbook of Labor Statistics, 1973, p. 149.

Table 50

Comparison of Indexes of Change in Relative Earnings, Employment Growth and Unemployment Rates, 1960-1970

Occupation Group	Relative Earnings Change		Relative Employment Growth		Relative Unemployment Growth	
	Index	Rank	Index	Rank	Index	Rank (Inverse Order)
Males, Total	100	--	100	--	100	--
Professional and Technical Workers	103	4	130	1	133	9
Managers, Proprietors and Officials, Non-Farm	105	3	106	3	116	6
Clerical Workers	97	7	100	6	112	5
Sales Workers	100	6	93	7	126	7.5
Craftsmen and Foremen	95	9	107	2	92	1
Operatives	92	10	101	5	106	3
Laborers, excl. Mine and Farm	96	8	91	8	95	2
Service Workers, excl. Private Household	102	5	103	4	109	4
Farmers and Farm Managers	116	2	57	9	---	--
Farm Laborers and Foremen	119	1	49	10	126	7.5
Females, Total	100	--	100	--	100	--
Professional and Technical Workers	110	2	119	1	138	7
Managers, Proprietors and Officials, Non-Farm	111	1	89	6	126	6
Clerical Workers	95	6	115	2	115	5
Sales Workers	107	3	92	5	104	4
Operatives	92	7	97	4	92	2
Private Household Workers	105	4	52	7	89	1
Service Workers, excl. Private Household	101	5	113	3	95	3

above-average growth in earnings. These comparisons -- although based on a very limited number of observations -- are sufficient to suggest that factors other than changes in relative demand played a major role in differential occupational wage rate changes over the past decade.

A second hypothesis which we subjected to this crude test was that differential wage rate changes were a function of changes in the "tightness" of the labor market for various occupations, as measured by differential changes in unemployment rates of experienced workers in each occupation group between 1960 and 1970. As shown in Table 49, the overall pattern of unemployment rate differentials among occupation groups had remained fairly stable between 1960 and 1970, with no change in rank ordering. White collar occupations -- normally characterized by relatively low unemployment rates -- did experience relatively higher unemployment rates in 1970 than in 1960, possibly due in part to the 1969-70 cutback in defense employment, with its large white collar component. Conversely, most blue collar and service worker occupations experienced a somewhat less-than-average increase in their unemployment rates. Again, a simple comparison of the rank orderings in Table 50 provides no support for the hypothesis of an inverse relationship between unemployment and wage rates. Only two male occupation groups (sales workers, service workers) and two female groups (clerical workers, sales workers) showed a close correspondence (± 1) in their relative earnings and their relative unemployment rate change rankings.

In order to further test the relationship between 1960-70 earnings changes and various labor supply and demand variables, a series of multiple regressions was conducted, using as the dependent variable in each case, the percentage change in year-round, full-time wage and salary income $(\Delta W)_i$. in the 19 occupations (for men) and the 13 occupations (for women) for which such data were published by the Census Bureau. To minimize sampling errors, earnings averages for 1959-61 and 1969-71 were used for the terminal years. These were tested iteratively in various models in relation to the following independent variables:

Percent employment change in occupation, 1960-70 $(\Delta N)_i$
Unemployment rate change in occupation, 1960-70 $(\Delta UNR)_i$
Change in percentage of women employed in occupation, 1960-70 $(\Delta FN)_i$
Change in percentage of non-whites employed in occupation, 1960-70 $(\Delta NW)_i$
Change in percentage employed part-time in occupation, 1960-70 $(\Delta PT)_i$
Change in median educational attainment in occupation, 1960-70 $(\Delta ED)_i$
Percent of workers in occupation who were union members in 1970 $(UNION)_i$

Data for these variables were derived from the Census CPS reports, supplemented by decennial Census data. We postulated that earnings growth would vary positively with employment growth and with the growth in the educational level of the occupation's work force, but that it would vary inversely with the change in the proportion of women, of non-whites, of youth and/or of part-time workers in the occupation. Because of the very small number of observations and of problems of inter-correlation, only three or four of the above variables could be included in any one test.

The results generally confirmed the findings based on our initial inspection of earnings changes by major occupation group, i.e., that no simple model could satisfactorily explain the changes in relative earnings between 1960 and 1970, for relatively broad occupational groupings. The amount of variance explained ($\bar{R}^2$) did not exceed .34 in any of these tests, More important, the few labor supply variables which met or approached the accepted confidence levels did not perform consistently in the separate models for men and women workers.

These limitations are illustrated by the results of two of the regressions which provided among the highest $\bar{R}^2$ values for men and women, respectively, among those tested:

Males (19 occupations)

$$(1)\quad \Delta W_i = \underset{(18.1)}{.6832^{**}} + \underset{(1.57)}{.2002}\,\Delta N_i$$

$$- \underset{(-3.01)}{4.1465}\,\Delta NW^{**} + \underset{(1.51)}{.0152}\,\Delta UNR_i$$

$$\bar{R}^2 = .26$$
$$f(3.15) = 3.129$$

Females (13 occupations)

$$(2)\quad \Delta W_i = \underset{(3.00)}{.2149^{**}} - \underset{(-2.15)}{.2367}\,\Delta N^{**} + \underset{(2.61)}{1.6902}\,\Delta NW^{**}$$

$$- \underset{(-1.94)}{1.9243}\,\Delta PT^{*}$$

$$\bar{R}^2 = .34$$
$$f(3.9) = 3.068$$

In equation (1), for men workers, the only explanatory variable which met standard tests of significance, at the .90 confidence level or higher, was the relative growth of non-white workers in the occupation. Although the sign was in the expected negative direction, the magnitude of the influence of shift in racial composition was found to be small: a one percentage point increase in the average percentage of non-white men in occupations was, on the average, associated with a reduction of .05 percentage points in the growth of male earnings. Employment growth also varied in the expected direction, for men, although its effect was also very small and it marginally failed to meet the .90 confidence level.

In equation (2), for women workers, three variables were found to be significant: employment growth, the change in percentage of non-whites, and the change in the percentage of part-time workers. However, two of these variables -- employment growth and change in percentage of non-whites -- varied in the opposite direction from that postulated and which had been observed in equation (1), for men. Only one variable -- growth in percentage of part-time workers -- had the expected negative effect upon growth in earnings of full-time, year round workers. One additional variable for women -- the relative change in educational level -- tested significantly, in a separate formulation, but this was in the negative direction, i.e., greater relative growth in the educational attainment of women workers in a given occupation group was associated with a lesser relative increase in earnings.

The lack of generalizable findings from this necessarily limited analysis simply tends to confirm the findings of other recent studies of trends in the wage structure. For example, an OECD study covering mainly post-World War II experience in ten countries, including the United States, had found some evidence of a positive association between employment and wage growth in particular industries and occupations, but in general found that "there is no evidence of a strong systematic statistical relationship between changes in earnings among individual industries and variations in total employment... Moreover, in most instances where the data provide evidence of a statistically significant relationship, it is clear that the explanatory role of relative wages is overshadowed by the influence of other factors."[1/]

It is, of course, possible to offer reasonable explanations for some of the differential occupational wage trends during the decade of the 1960's, based on specific factors relevant in each occupation or industry. Thus, the rapid growth in earnings of professional workers during the 1960's is explainable by the strong expansion of demand in such fields as teaching and engineering, and the limited growth in supply of college graduates, as a result of the relatively small size of the age group reaching college graduation age during most of this decade. Occupations such as clerical jobs, on the other hand, experienced a much smaller relative wage growth because they were able to utilize the much larger and growing pool of female workers (of all ages), who were not college graduates and who regarded these jobs as preferable to blue collar or service occupations. At the other extreme of the occupation spectrum, relatively large percentage increases in earnings for certain low wage occupations -- such as male farm workers and female household workers -- in the face of sharp reductions in employment, suggested that large-scale withdrawals of workers from these occupations and reluctance of younger workers to enter these low-wage, low-status occupations may have been the decisive factors. Finally, expansion of coverage of minimum wage laws during the 1960's to several million additional workers may have contributed to the larger-than-average increases in earnings for certain other low wage groups such as female sales and service workers.

[1/] OECD, Wages and Labor Mobility, Paris, 1965, p. 16.

C. Inter-Area Differences in Relative Wages

Our second approach to analysis of occupational wage differentials was based on a series of cross-sectional models, limited to a number of more specific lower-level occupations. A total of 10 occupation/sex categories were selected for this purpose: chambermaids and maids (female); cleaning service workers (male); cooks (male and female); construction laborers (male); hospital attendants (male and female); laundry and dry cleaning operatives (male and female); sewers and stitchers (female). Of these occupations, all but two are classified in our Group V status group, and these accounted for approximately 30% of the experienced civilian labor force in Group V occupations in 1970. The remaining two occupations -- hospital attendants and sewers and stitchers -- fall within the Group IV category. The selection of specific occupations was based on two main considerations:

(1) Data availability -- All occupations selected are widely distributed geographically; hence, published Census employment data were available on them in all, or nearly all, of the metropolitan areas selected for analysis.

(2) Industry concentration -- These occupations are highly concentrated in one or two major (two-digit) industries, thus reducing the degree of inter-area wage variation which might be attributable to inter-area differences in industry mix.

Additional considerations in selection of occupations for this analysis were to assure a range of occupations reflecting differing labor force characteristics (i.e., predominantly male, predominantly female or with a mixed sex composition) and difference in growth characteristics (i.e., expanding vs. contracting occupations).

A fully articulated econometric analysis of the labor market for these occupations would logically require a simultaneous model in which: (1) labor demand in a specific occupation and area is expressed as a function of wages and of various demand-specific variables (e.g., number of households, family income, industry mix, etc.); (2) labor supply is expressed as a function of wages and of the various relevant labor supply factors (e.g., socio-demographic characteristics of the area's labor force; alternative labor market opportunities); and (3) occupational wage rates in turn are determined as a function of the relevant labor supply and demand equations. Such a system of equations did not prove to be feasible for present purposes. One of the technical limitations encountered was the difficulty in obtaining a valid measure of occupational labor supply. This can differ significantly from reported statistics of either employment or "experienced civilian labor force" by occupation. The latter is simply the sum of employed workers in a given occupation and experienced unemployed workers last employed in that occupation. The latter clearly need not correspond to the number actually available for or seeking work in a given occupation at a given wage level, or at varying wage levels.

As an alternative, a "reduced form wage equation" was employed, which includes as explanatory variables a combination of variables hypothesized to affect labor supply and labor demand in various occupations, but which only purports to identify the most significant influential variables. To illustrate, it appeared reasonable to include a variable such as family income in our model, both because of its possible relevance to labor supply of secondary family members and because of its relevance to labor demand, notably in personal service occupations, such as laundry workers. The reduced form equation does not however permit us to isolate each of these influences, only the net effect.

The dependent variable for this model was the ratio of earnings of full-year workers in the given occupation to a standardized earnings measure for each area. The latter was computed separately for men and women, based on an average of earnings of full-year workers in 16 male occupations and in 13 female occupations. National employment totals by occupation group, and for detailed occupations, were used as the weighting factors. These occupations include a range of non-professional and non-managerial jobs typically found in all larger metropolitan areas.[1] The resulting averages may be considered as reasonable approximations of general occupational earnings differentials among SMSA's for full-year workers. In turn the ratio of the earnings of workers in a specific occupation to this standardized earnings measure (W_{ij}/W_{STD}) provides a uniform measure of relative earnings in the given occupation.

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[1] Algebraically, $W_{ij}/W_{STD} = \dfrac{\sum_{i=1}^{n} N_{iUS} \cdot W_{ij}}{\sum_{i=1}^{n} N_{iUS}}$

where N_{iUS} - the share of occupation i in the respective Census occupation group (sales clerks nationally ÷ total female sales workers, nationally, for example), and W_{ij} is as defined above. The occupations used for females included: clerks; bookkeepers; secretaries; assemblers; checkers, examiners and inspectors; laundry and dry cleaning operatives, packers and wrappers; sewers and stitchers; misc. operatives in durable goods manufacturing; cleaning service workers; food service workers; health service workers; and private household workers. For males: sales representatives, retail trade; salesmen, retail trade; clerical workers, total; construction craftsmen; automobile mechanics; metal craftsmen, excluding mechanics; assemblers; welders and flamecutters; machine operatives; misc. specified; operatives, misc. machinery, including electrical; truck drivers and deliverymen; construction laborers; freight stock and material handlers; cleaning service workers; food service workers; protective service workers.

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We hypothesized that relative wages in lower level occupations were a function of the following types of variables: (1) race and ethnic composition of the occupation and/or SMSA; (2) relative labor market opportunities of minority groups in the SMSA; (3) age composition of the occupation's and/or SMSA's labor force; (4) educational attainment of workers in the occupation and/or SMSA; (5) general labor market conditions in the SMSA, e.g., unemployment rates; (6) average family income in the SMSA; (7) average AFDC payments in the SMSA; (8) extent of unionization of the occupation; and (9) selected other occupation-specific variables which might account for differences in relative wages.

The data base for this model consisted mainly of published 1970 decennial Census data for 68 SMSA's with populations of 250,000 or more. SMSA's, rather than states, were selected as the geographical unit of observation because of their greater relevance for labor market analysis. The limitation to large SMSA's was dictated by the fact that the 1970 Census did not publish detailed labor force data by occupation for smaller SMSA's. Moreover, since the Census does not publish detailed data on work force characteristics by occupation, or by race, for those SMSA's where the frequency of a given occupation (or characteristic) is below certain thresholds, the actual number of areas included in the equations for specific occupations range between 57 and 66.

In view of the exploratory nature of the model being tested, two or more alternative formulations of many of the sets of variables surveyed above were included in our data base. For example, the racial/ethnic composition measures used included: (1) percent of Negro workers employed in the specified occupation ($PCTBLK_{ij}$); (2) percent of Negro workers in the area's labor force ($PCTBLK_j$); (3) percent of Spanish-origin workers in the area's labor force; and (4) percent of foreign born workers of Latin American origin in the area's labor force. In all, a total of 30 separate independent variables were incorporated into our data base, as specified in Table 51.

Although the data base provided by the detailed 1970 Census area labor force data was reasonably comprehensive it still suffered from a number of important limitations for our purposes:

1. Annual earnings of all workers employed 50-52 weeks in 1969, classified by their principal occupations in 1969, served as our proxy for relative wage rates.[1/] This measure thus includes earnings of workers who were employed year round, but on a part-time basis, in contrast to the CPS annual earnings data for full-time, year round workers cited earlier in this chapter. The unavailability of occupational earnings data classified by annual hours worked required an assumption that full-year workers in a given occupation worked the same number of hours per year in each area. The magnitude of the possible resulting biases is suggested by CPS data on work experience of persons, 14 years and over, with earnings in 1969. Of all such workers who worked year-round, i.e., 50-52 weeks in 1969, 6.2% of all males and 18.4% of all females, worked at part-time jobs.[2/] This implies a larger potential bias in our relative wage measure for female than for male occupations. From

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[1/] Unfortunately, with very limited exceptions, no alternative direct measures of wage rates or hourly earnings for these occupations were available, corresponding in occupational coverage and in area detail to the Census data on characteristics of the work force by occupation.

[2/] U.S. Bureau of the Census, Income in 1969 of Families and Persons in the United States, Series P-60, No. 75, Table 54.

Table 51

LIST OF INDEPENDENT VARIABLES TESTED IN REDUCED FORM WAGE EQUATION MODELS

Variable	Description	Source
RACE/ETHNIC		
1. PCTBLK_j	Percent of blacks (sex specific) in SMSA labor force, 1970	Table 172, 1970 Census Detailed Characteristics
2. PCTBLK_{ij}	Percent of blacks in occupation, 1970	Table 172, 1970 Census Detailed Characteristics
3. $\frac{\text{PCTBLK}_{ij}}{\text{PCTBLK}_j}$	Relative concentration of blacks in occupation, 1970	Table 172, 1970 Census Detailed Characteristics
4. MEBRELW_j	Ratio of median earnings of black to white year-round workers in SMSA, 1969	Table 197, 1970 Census Detailed Characteristics
5. PCTLFSPO_j	Percent of Spanish-origin workers in labor force of SMSA, 1970 *	Table 172, 1970 Census Detailed Characteristics
6. PCTFBLA_j	Percent of persons in SMSA who are foreign born of Latin American origin, 1970	Table 81, 1970 Census General Social and Economic Characteristic
7. $\Delta\text{NWPOP60-70}_j$	Change in percentage of non-white persons in SMSA Population, 1960-70	County and City Data Book, 1972
AGE		
8. PCTYOUTH_j	Percent of persons (sex specific), age 16-24, in SMSA labor force, 1970	Table 174, 1970 Census Detailed Characteristics
9. PCTYOUTH_{ij}	Percent of persons (sex specific), age 16-24, in occupation, 1970	Table 174, 1970 Census Detailed Characteristics
10. $\frac{\text{PCTYOUTH}_{ij}}{\text{PCTYOUTH}_j}$	Relative concentration of youth (sex specific), occupation, 1970	Table 174, 1970 Census Detailed Characteristics
11. LFPR16-24_j	Civilian labor force participation rate of persons, 16-24 years of age (sex specific), 1970	Table 164, 1970 Census Detailed Caracteristics
12. LFPR25+_j	Civilian labor force participation rate of persons, 25 years and older (sex specific), 1970	
EDUCATION		
13. PCTED12P_j	Percent of SMSA labor force with 12 or more years of education (sex specific), 1970	Table 197, 1970 Census Detailed Characteristics
14. $\frac{\text{BLKED12P}_j}{\text{CLF}_j}$	Percent of blacks in total SMSA labor force with 12 or more years of education relative to persons in the labor force (sex specific), 1970	Table 197, 1970 Census Detailed Characteristics
15. BRELWED12P_j	Percent of blacks in SMSA labor force with 12 or more years of education relative to percent of whites with 12 or more years of education (sex specific), 1970	Table 197, 1970 Census Detailed Characteristics
AGE/EDUCATION		
16. $(\text{PCTYOUTH}_{ij}) \times (\text{PECTED12P}_j)$	Percent of occupation, 16-24 years of age, weighted by percent of SMSA labor force with 12 or more years of education (sex specific), 1970	Tables 174, 197, 1970 Census Detailed Characteristics
LABOR MARKET		
17. UNR_j	SMSA unemployment rate (sex specific), 1970	Table 164, 1970 Census Detailed Characteristics
18. $\text{PCTM16-21NISNILF}_j$	Percent of males in SMSA, 16-21 years of age, who are not in school and unemployed or not in labor force, 1970	Table 83, 1970 Census General Social and Economic Characteristic
INCOME/EARNINGS		
19. INCFAMH_j	Median annual income of families with male head, in SMSA, 1969	Table 198, 1970 Census Detailed Characteristics
20. AFDC_j	Average monthly benefit from Aid to Families with Dependent Children, by SMSA, 1972	County and City Data Book, 1972
21. PCTHIW_j	Percent of SMSA labor force employed in selected high wage industries (sex specific), 1970	Tables 175, 176, 1970 Census Detailed Characteristics

Table 51
(continued)

LIST OF INDEPENDENT VARIABLES TESTED IN REDUCED FORM WAGE EQUATION MODELS

Variable	Description	Source
22. MEDFAMINCOME$_j$	Median family income in SMSA, 1969	County and City Data Book, 1972
23. MEDEABM$_j$	Median earnings of non-white males in SMSA, 1969	Table 197, 1970 Census Detailed Characteristics
REGION		
24. SOUTH$_j$	Southeast, Southwest SMSA's = 1 Otherwise = 0	
UNIONIZATION		
25. PCTUNION$_{ij}$	Union membership (selected unions) as ratio to employed workers in occupation, by state, 1970	Unpublished union membership statistics by state, selected unions, Bureau of Labor Statistics and Tables 170, 171, Detailed Characteristics
GROWTH		
26. $\triangle$EMP60-70$_{ij}$	Percent change in SMSA occupational employment, 1960-70	Table 171, 1970 Census and Table 121, 1960 Census Detailed Characteristics
INDUSTRY MIX		
27. PCTSSRHOTELS$_j$	Retail expenditures on hotels and lodgings relative to selected services, by SMSA, 1967	County and City Data Book, 1972
28. PCTSSREATDRK$_j$	Percent of total retail sales receipts due to eating and drinking establishments, by SMSA, 1967	County and City Data Book, 1972
29. PCTMULTIFAM$_j$	Percent of familes living in multi-unit dwellings in SMSA, 1970	County and City Data Book, 1972
30. MIX$_j$	Value of new residential construction relative to value of new nonresidential construction in SMSA, 1970	Unpublished data, Construction Division, Bureau of Census

* Spanish origin based on Spanish surname or Spanish language use.

collateral information, it also is reasonable to infer that the bias is greater, generally, in those lower-level occupations with a high proportion of part-time workers, such as cooks or cleaning service workers. (See Table Table 44.)

2. The "detailed" Census occupational classifications, although more useful than the broad occupation groups used in our analysis of 1960-70 earnings changes, were still too broad in most cases for careful measurement of occupational earnings differentials by area. For example, sewers and stitchers in the New York City area include a large proportion of skilled workers employed in the "high fashion" segments of the apparel industry; those employed in the South include a higher proportion of less-skilled workers employed in the more standard "mass production" components of the industry, such as work clothing and men's shirts.

3. Demand-specific variables associated with the selected low-level occupations could not be adequately specified in most cases. The absence of an occupation/industry matrix at the SMSA level was a significant handicap in our analysis of those occupations which are distributed among two or more industries with differing industry wage structures. (Certain proxy variables on industry mix were introduced, however, for some of the occupations, where pertinent data were available.)

4. Unionization -- which is recognized as an important variable in most wage structure studies -- could only be estimated indirectly and partially from available BLS data. Geographical distributions of union membership, if available at all, are normally limited to the state level. In most instances, there is no precise correspondence between the jurisdiction of a given union and a specific Census occupation or industry. To

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develop a measure for this potentially important variable we were thus compelled to use the ratio of state membership in the union identified as including the largest number of members in a particular occupation or industry, and the employment in that occupation or industry, by state, as reported in the 1970 Census.

Our final methodological note concerns the estimation of the reduced form wage equation. A stepwise regression technique was employed, rather than a fixed model. Its effect was to include the maximum number of significant variables -- among the whole range of variables available -- which contributed to the explanation of inter-area variations in relative earnings for the specified occupations. This form excludes certain variables -- which although separately significant -- do not contribute to maximization of explained variance.

The results of this analysis are presented in summary form in Table 52. Of the variables included in our data base, only 19 variables, grouped under ten broader categories, met our tests of significance in one or more of the ten occupation/sex categories, and no more than five explanatory variables were included in an equation for any single occupation. All of the resulting equations met statistical tests of signficance at the .99 confidence level with coefficients of determination $(\bar{R}^2)$ ranging from .69 for male construction laborers, to only .16 for female sewers and stitchers.

The elasticities in Table 51 measure the impact, for example, of a one percent variation in a specified "significant" variable upon changes in relative wages (at the mean) -- holding other factors constant. An inspection of this table indicates that, for the limited range of occupations under study, the influence of various labor market factors upon relative wages is quite variable. These results are discussed below for each of the major categories of variables:

Racial-Ethnic Factors -- Based on prevailing theories of the dual or "segmented" labor market, we hypothesized that relative wages in lower-level occupations would be lower in those areas which included large concentrations of black or Spanish origin workers in the occupation, particularly where alternative job opportunities for such workers are inferior. Some support for this premise was found in two or three of the male occupations, but in none of the female occupations. A higher concentration of black workers in the occupation ($PCTBLK_{ij}$) was found to be associated with a lower relative wage for that occupation in the case of construction laborers, male laundry and dry cleaning operatives and male cleaning service workers. The impact on relative wages was considerable for construction laborers, (i.e., an elasticity of -.302); it was quite small in the remaining two occupations (i.e., -.088 for laundry and dry cleaning workers, and -.073 for male cleaning service workers).

For two of these three male occupations, construction laborers and cleaning service workers, the ratio of full year earnings of male black workers to those of white workers proved more significant in explaining interarea variations in relative wages than did the proportion of black workers employed, as evidenced by elasticities of .356 and .324, respectively. The latter variable was designed as a measure of relative earnings opportunities for black workers in each area. Hence, this finding implies that -- at least in the two specified occupations -- as black workers approach parity in labor market opportunity, significant increases in relative wages in certain "low-level" occupations, in which they have been previously concentrated, may be expected.

Table 52

REDUCED FORM WAGE EQUATION ELASTICITIES FOR SIGNIFICANT VARIABLES, CALCULATED AT MEANS (DEPENDENT VARIABLE: Wij/WSTDj)

TYPE	Race/Ethnic				Age			Education		Age/Education	Labor Market		Income		Region	Unionization	Growth	Industry Mix		R^2
	PCTBLKij	ΔNWPOP 60-70 j	PCTLFSPOj	FYEB1/FYEWj	PCTYOUTHij	PCTYOUTHij/PCTYOUTH j	LFPR16-24j	PCTED121j	PCT BLKED12	PCTYOUTHij x PCTED121j	UNRj	PCTM16-21 NISKILF	FAMINCj	AFDCj	SOUTHj	PCTUNIONj	ΔEMP 60-70j	PCTBSL [illegible]	PCTBSR [illegible]	
MALE																				
Hospital Attendants			.034***				-.371*	-.542**												.333***
Construction Laborers	-.302***			.356***		-.112***									.054**					.605***
Cooks		.042***			-.163***				-.063***											.492***
Laundry & Dry Cleaning Operatives	-.088***				-.034***							-.076**	.200**					.034***		.258***
Cleaning Service Workers	-.073***			.324**												.010*				.690***
FEMALE																				
Hospital Attendants							-.399***				-.160**		-.600***							.285***
Sewers and Stitchers	.023**									-.183**					.030***	.033**				.164***
Cooks	.042**				-.271**		.230***		-.081***					.071***					.215***	.385***
Charwomen, Chambermaids					-.107***				-.068**				.471***			-.017**				.328***
Laundry & Dry Cleaning Operatives			-.008**								-.099***					.018***	.149***			.298***

*** = Significant at .99 level of confidence
** = Significant at .95 level of confidence
* = Significant at .90 level of confidence

The results for the selected female occupations -- on the other hand -- do not provide any support for the "overcrowding" hypothesis. In fact, in two of the five female occupations analyzed -- sewers and stitchers and cooks -- a higher concentration of black women workers in the occupation, in particular areas, was associated with a higher, rather than lower relative wage, albeit with very low elasticities. This may be due, in part, to the lesser reliability of annual year-round earnings data for women as a wage rate proxy. Moreover, in the case of sewers and stitchers, we believe that the positive relationship of relative wages to percentage of blacks employed may be a consequence of the recent movement of the apparel industry to Southern communities characterized by low general wage levels, and which have also increasingly utilized indigenous black women workers in their labor force, as described in Chapter VI. Hence, the small, but significant, positive relationship between the proportions of black women in sewing occupations and relative wages, may have resulted from the fact that inter-regional differences in general occupational wage levels (as measured by our standardized occupational wage index) are slightly greater than in the apparel industry alone -- possible as a consequence of such factors as union organization and the minimum wage.

Concentrations of Spanish-origin workers in particular areas also were not found to have the expected negative effect upon relative wages in the selected occupations. In one occupation -- male hospital attendants -- a larger proportion of Spanish-origin workers was associated with slightly higher relative wages, possibly reflecting either employer preferences for such workers (as compared to blacks) or the fact that Spanish-origin workers, including many recent immigrants, have tended to move into expanding or "shortage" occupations.

Youth -- A larger supply of youthful workers aged 16-24 years was expected to have a depressing effect upon wage levels in low-level occupations, on the premise that youth without specialized training -- in common with minority workers -- tend to be "overcrowded" in these occupations. Moreover, it would be reasonable to expect an adverse differential for youth, even in less skilled jobs, because of their lesser experience and productivity. Several measures of youth labor supply were included in our data base, i.e., the percentage of youth in the specified occupation ($\mathrm{PCTYOUTH}_{ij}$); the ratio of the percentage of youth in the occupation to the percentage of youth in the area's labor force as a whole ($\mathrm{PCTYOUTH}_{ij}$/ $\mathrm{PCTYOUTH}_{j}$) and the labor force participation rate of youth in each area ($\mathrm{LFPR}\ 16\text{-}24_{j}$). In addition, because of the observed covariation between age and educational attainment by occupation, a compound variable ($\mathrm{PCTYOUTH}_{ij} \times \mathrm{PCTED12}_{ij}$) was also tested. These "youth" variables -- in varying forms -- proved to be significant, and in the expected direction, in almost all of the occupations studied.

The interpretation of these relationships is however clouded by the nature of the dependent variable used. Since we have been obliged to use annual earnings of year round -- but not necessarily full-time workers -- as our proxy for occupational wage levels, it is possible that interarea differences in occupational earnings were affected, to some extent, by variations in the proportion of regular part-time workers employed in certain occupations, such as cooks or domestic workers (which typically utilize large proportions of part-time employees). Since youth are a major component of the part-time labor force, the regressions may have reflected interarea variations in hours worked per year, rather than in wage rates. However, in view of the fact that regular part-time workers constitute only 10% of the total labor force of workers employed 50-52 weeks, it is possible that though this factor has caused some upward bias in the resulting elasticities -- the youth variable would have been significant and in the expected direction even if unbiased estimates of relative wage rates were available. To illustrate, the "youth concentration" variable proved significant in the construction laborer wage equation, even though only 6% of its year-round labor force consists of regular part-time workers.[1/]

Educational Attainment -- We had hypothesized that a "more educated" labor force would, generally, have the effect of reducing the labor supply and of increasing relative wages in lower level occupations. Educational attainment in our model, was measured alternatively as the percentage of workers in each occupation with 12 or more years of education, ($PCTED12_{ij}$) and as the percentage of black workers in the area with 12 or more years of education ($PCTBLKED12_j$). The first of these variables ($PCTED12_{ij}$), was found to be significant in relation to relative wages only in the case of male hospital attendants, but with an unexpected negative sign. In three other occupations -- male and female cooks, and female charwomen and chambermaids — a higher proportion of black workers with 12 or more years of school was also associated with a lower relative wage, although with low elasticities. It is likely that these results resulted from the inherent difficulty of isolating the separate effect of educational attainment from that of age distribution. In any event, the data provide no support for our hypothesis that an increase in the proportion of high school graduates in the labor force will, *per se*, result in a reduced labor supply and, hence, higher relative wages for lower level occupations.

[1/] Based on unpublished BLS data, derived from CPS annual income surveys.

Unemployment -- We assumed that areas with higher unemployment rates would tend to have lower relative wages in low level occupations, other factors being equal. This relationship was validated in two of the five female occupations, hospital attendants and laundry operatives, with elasticities of -.10 and -.16, respectively. It did not prove to be significant for any of the male occupations. An alternative labor market measure, the percentage of males, 16-21 years, who were neither in school nor in the force, did prove to be significant for male laundry operatives, although with a low elasticity (-.08).

Income -- Average family incomes or alternative sources of income, such as AFDC, were assumed to have an impact upon relative wage levels in low-level occupations, both through their influence upon labor supply and upon labor demand, in certain of the industries employing workers in such occupations. On the labor supply side, we hypothesized that higher alternative income levels, e.g., through earnings of other family members or AFDC, would tend to raise the reservation wage of workers whose job choices were limited to low-level occupations. On the demand side, higher levels of family income were postulated as increasing the demand for personal services, hence, serving also to increase relative wages in occupations, related to personal service activities. Thus, generally, a positive relationship was postulated.

The results for these variables proved to be mixed, however. The family income variable ($FAMINC_j$) met our tests of significance, in the expected positive direction, in only two occupations -- male laundry and dry cleaning workers and charwomen and chambermaids. It was significant but negative, in the case of female hospital attendants -- a "higher level" Group IV occupation. The AFDC variable was significant and positive for only one occupation, female cooks. It should be noted, however, that alternative model formulations for selected occupations, as described in Chapter VI, did identify the AFDC variable as significant in explaining inter-area wage and/or employment differentials among two other low wage female occupations: domestic maids and sewers and stitchers in Southern cities.

Region -- A dummy variable identifying Southern SMSA's was included in the model on the premise that this variable would reflect the effects of a combination of regional economic and institutional factors, relevant to wage structures, and which were not otherwise adequately specified in the model. BLS area wage studies have consistently shown wider differentials between unskilled and skilled wage rates in the South than in Northern cities; hence, a negative sign for the "South dummy" was expected. This variable proved to be significant in only two of the occupations -- male hospital attendants and female sewers and stitchers. In both, the variable was actually positive, but with low elasticities. This would suggest that other more specific variables included in our model, such as racial/ethnic factors, income levels and degree of unionization, were more important in "explaining" interarea wage differentials than location in the South, per se.

Unionization -- Higher rates of union membership were expected to be positively associated with relative wage levels in our model. As noted earlier, the union membership ratios by area were approximated by state-level ratios of reported membership in selected unions to employment for those occupations or industries where relevant union membership data were available. These unionization ratios were found to be significant in the expected direction in three of the eight occupations for which such ratios could be derived, i.e., male cleaning service workers, female sewers and stitchers and female laundry and dry cleaning operatives. The unexpected negative sign was found in one occupation, female charwomen and chambermaids. All elasticities were very low (in the .01 to .03 range), possibly due in part to the inadequacy of the union membership data for our purposes.

Growth -- We also hypothesized that relatively rapid growth in an occupation between 1960 and 1970, other factors being equal, would be associated with an increase in its relative wages. This proved to be a significant independent variable in only one occupation, female laundry and dry cleaning operatives, with an elasticity of .15. The reliability of this variable was undoubtedly affected, to some degree, by the effects of changes in Census occupational classification and reporting procedures.

Industry Mix -- Proxy variables designed to allow for inter-area variations in the industrial distribution of workers by occupation were incorporated in our data base for seven occupation/sex groups. These included the percentage of selected service industry receipts coming from hotels and motels (for cooks, laundry workers, charwomen and chambermaids); the percentage of total retail sales receipts from eating and drinking establishments (for cooks) and the ratio of the value of residential to nonresidential structures for construction laborers. The "mix" variable proved significant for the cooks occupation, indicating that higher relative concentrations of hotels or eating and drinking establishments in an area were associated with higher relative wages for cooks. In separate models, described in Chapter VI, the residential-non-residential mix proved to be a significant variable in explaining inter-area differentials for construction laborers. Moreover, from collateral information, it is probable that introduction of detailed industry distributional data for sewers and stitchers would have considerably improved the efficiency of our relative wage model for that occupation as well.

D. Some Tentative Conclusions

In this chapter, we have attempted to develop quantitative measures of the relationship between specified labor supply variables and occupational wage structures based both on a comparison of changes by broad occupational groups, for the 1960-70 decade, and on a more detailed comparison of inter-area differences in relative earnings in 1969, for selected lower level occupations. Any attempt to generalize from these findings must be carefully qualified in view of the many limitations of the available data base and of our model specifications. The following observations must therefore be interpreted as tentative findings, supported by some empirical data.

Generally, our analysis has tended to confirm findings of other investigations concerning the relative stability of occupational wage structures, at least over relatively short time spans, such as a decade. Thus, the substantial changes in labor supply during the decade of the 1960's were accompanied by only limited changes in relative wages for major occupational groups. Similarly, our cross-sectional analysis for 1969-70 generally resulted in relatively low elasticities for those labor supply variables which proved to be significant. It is probable that many institutional factors impinging upon the wage-setting processes, as well as a relatively high degree of adaptability of the labor force, contributed to the generall overall stability of the occupational wage structure.

Nevertheless, both the 1960-70 comparisons and the cross-sectional analyses have provided significant indications of labor supply impacts upon relative wages in specific occupations -- and, by inference -- upon occupational employment levels, as well. Some of these indications are summarized below:

(1) Hired farm laborers and private household workers both experienced greater-than-average wage increases in the decade of the 1960's, despite sharp reductions in their employment levels. Both of these occupations have been at or near the bottom of the occupational hierarchy in terms of pay and status; they have relied upon blacks and other disadvantaged population groups for their labor supply in the past. Neither of these occupations were covered by minimum wage laws or were unionized to any appreciable extent during this decade. It is reasonable to infer that the increase in relative earnings and some portion of the employment reduction in these occupations were direct consequences of the expansion of job opportunities in higher wage, higher status occupations for many of these workers, as well as of the reluctance of younger minority group workers to enter these occupations. (For a more detailed analysis of the labor supply of domestic maids, see Chapter VI.)

(2) Our analyses also provided some partial support for the "overcrowding" hypothesis, i.e., that the concentration of black workers in low status occupations has had the effect of reducing relative wages in such occupations. The supporting evidence was however limited to male workers.

Thus, in three of the five male low level occupations included in our cross-sectional model -- construction laborers, cleaning service workers and laundry and dry cleaning operatives -- relative wages were lower in these SMSA's where a larger proportion of blacks were employed in these occupations. In the first two of these occupations, we found even more significant positive relationships between a general measure of local labor market opportunities for black male workers (i.e., the ratio of their full-year earnings to those of white males), and the relative wage level in the specified occupation. Similarly, our model of occupational wage changes for male workers between 1960-70 established a significant negative relationship between wage growth and the increase in nonwhite employment by occupation. Neither of these findings were found to be applicable in the case of female workers in the limited range of occupations covered by our analyses.

(3) Differential concentrations of youth and/or part-time workers in particular occupations appeared to have had a depressing effect upon earnings of year-round workers in some of these occupations. The evidence for this finding from our cross-sectional analysis is clouded because of the likelihood that these relationships reflected the combined effect of both increased labor supply pressure and lower hours of work, associated with higher utilization of younger workers in these jobs. However, our analysis of 1960-70 occupational earnings changes for female workers -- limited to those working year-round on full-time jobs -- also found that earnings rose less in those occupations which included larger concentrations of part-time workers.

(4) Higher unemployment rates or related indicators of labor market surplus were found to have a significant (but small) depressing effect upon

relative wages in three of the ten lower level occupation/sex groups included in our cross-sectional analysis, but were not found to be a significant explanatory variable in our analysis of occupational wage trends for 1960-70. It should be noted that our cross-sectional data base was limited to unemployment rate observations in a particular week, i.e., the 1970 Census survey week, and therefore provided -- at best -- a limited measure of the impact of labor market conditions upon relative wages by occupation.

(5) Finally, we should note that, although we had hypothesized a positive relationship between inter-area differences in educational levels of workers in particular lower-level occupations and relative wages, this relationship was not confirmed by our cross-sectional studies. In fact, where significant relationships were found, they were in the (unexpected) negative direction. This may be due in part to the intercorrelation between the educational level and the "youth" variables in our step-wise regression model. Nevertheless, it is important to note that these analyses -- as well as our 1960-70 wage trend analysis -- provide no confirmation that an increase in educational attainment of workers will reduce the labor supply and increase the wages of workers in lower-level occupations in the absence of alternative preferred employment opportunities for such workers. Neither of these analyses addressed collateral issues such as the possible impact of "overqualification" of workers upon job satisfaction or labor turnover.

Chapter V

Projections of Occupational Labor Supply and Demand to 1985

A. Introduction

At the outset of the present study, we offered a hypothesis that as a result of a number of recent social and demographic trends, the earlier manpower sources for staffing lower-level occupations, such as Negroes, immigrants, rural in-migrants and other "disadvantaged" groups in the labor force, were declining, and that continuation of these trends might require a number of significant labor market adjustments to meet anticipated needs of the economy for "lower level" manpower in future decades. Our detailed review of recent trends in occupational labor supply indicated that these trends were operative in the 1960's but that their effect was, at least temporarily, counterbalanced by the exceptionally large inflow of new entrants into the labor force, many of whom replaced non-whites as well as white adults in the lower-status occupations. As a consequence, our analysis of differential wage trends by occupation and collateral labor market data did not provide any clear indications of supply constraints upon the aggregate level of employment in lower-level occupations during the decade, although employment and wages in specific occupations -- such as domestic service and farm labor -- were probably influenced by these socio-demographic trends.

Looking ahead to the coming ten-year period, we can however anticipate some significant shifts in the balance of supply and demand factors affecting low-level occupations. On the supply side, there will be a substantial reduction in the rate of inflow of young workers into the labor force from the peak rates of the 1960's, as well as a reduced net inflow of adult women. Further, despite some recent slowdown in college enrollment rates, the educational attainment of the labor force will continue to rise, as younger workers with longer periods of formal schooling replace less-educated older workers in the course of the decade. The outlook is also for a further reduction in the net migration of workers from farm to city, and for a levelling off -- or possible curtailment -- of legal immigration of low-level manpower from nearby Latin American countries, as a result of recently implemented revisions in the immigration laws. All of these factors will tend to constrain the overall supply of workers for low-level jobs under conditions of high aggregate demand for labor.

The first part of this chapter describes the methods used to project the "expected" distribution of the labor force, in 1980 and 1985, by broad occupational status group, taking into account the recent trends in occupational distribution of major socio-demographic groups, as well as the projected changes in labor force composition. These projections are then compared with projections of employment, or labor requirements, to provide a preliminary assessment of possible occupational imbalances. The final section of this chapter discusses the probable nature and direction of labor market adjustments which may be required in various occupations.

B. Occupational Labor Force Projections

The effect of such characteristics as sex, age, education, race and nativity upon the occupational distribution of workers has been systematically described in earlier chapters of this report. Workers with limited education and work experience, as well as those subject to various forms of job discrimination because of their racial or ethnic background have been constrained in their choices to the less-desirable, lower-paying occupations and industries. Conversely, those with better education and more work experience -- and who were not subject to such job discriminations -- have normally been concentrated in the higher status occupations and have not been available for lower level jobs, at least during periods of high aggregate labor demand. To illustrate, in 1970 only 1.3 percent of white women workers 25 years and over with 13 years or more of education were in Group V occupations, as compared to 65.1% of nonwhite women with less than nine years of schooling. (See Table 20.)

These patterns, as we have observed, have not been fixed but have changed over a period of decades in response to shifts in the composition of the labor force and to changes in the occupational distribution of available jobs, as well as due to a number of social and institutional forces. We can expect that in the future -- as well as the past -- the actual occupational distribution of workers will be the result of a complex interaction of the many supply and demand variables operating upon the labor market and of concurrent changes in relative wages. The extent to which exogenous labor supply variables, such as changes in the age structure of the labor force or in its educational distribution, will influence the future availability of workers for specific occupations or their relative wages can only be partially estimated from available empirical evidence. Nevertheless, from the evidence in Chapter IV, it seems probable that major shifts in these socio-demographic variables will exert a significant impact on labor supply and employment trends in some of these occupations and on the overall availability of workers for lower-level jobs.

From this point of departure, estimates have been developed of the "expected" distribution of the labor force by broad occupational groups in 1980 and 1985, based on: (1) projections of the labor force by age, sex, race and educational attainment, and (2) projections of occupational participation rates, for each of these population subgroups. The methods and sources used in these projections and the resulting trends are summarized below.

1. Labor Force Projections -- BLS projections of the labor force by age, sex and educational attainment to 1990, published in 1973, were adopted as a point of departure.[1/] Since the BLS labor force projections referred to the total labor force, including the armed forces, and were on an annual average basis, comparable to annual average CPS data, a further series of adjustments was needed for comparability in coverage and seasonal level to corresponding decennial Census statistics for the experienced civilian labor force in 1960 and 1970. A reconciliation between the BLS total labor force projections and our projections of the experienced civilian labor force for March 1980 and March 1985 is presented below:

	(Millions) 1980	(Millions) 1985
Total Labor Force, Annual Average, Comparable to CPS	101.8	107.7
Less: Armed Forces Projection	- 2.0	- 2.0
Less: Adjustment for Difference between March 1980 Labor Force and Annual Average Labor Force	- 3.4	- 4.2
Civilian Labor Force, March 1980	96.4	101.5
Less: Experienced Workers, Occupation Not Reported	- 4.3	- 3.6
Less: Inexperienced Civilian Labor Force	- 0.6	- 0.4
Experienced Civilian Labor Force, with Occupation Reported, comparable to decennial Census	91.5	97.5

The BLS projections for the total labor force indicate that the overall rate of labor force growth during the 1970-80 decade will be only slightly less than the high growth rate of the 1960's (Table 53), reflecting the continued movement into the labor force of the large post-World War II generation born in the 1950's

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[1/] Denis F. Johnston, "Education of Workers: Projections to 1990," Monthly Labor Review, November 1973.

Table 53

Percent Changes in Total Labor Force, 16 Years and Over, by Age and Sex, Actual, 1960-70; Projected 1970-85

Sex and Age Group	1960-70	1970-80	1980-85
Both Sexes	19.1	18.5	5.8
16-19 Years	46.4	9.1	-14.1
20-24 Years	63.7	25.9	-2.8
25-34 Years	17.1	51.5	11.1
35-44 Years	0.1	11.5	23.8
45-54 Years	15.6	-3.4	-0.9
55-64 Years	19.9	13.4	1.1
65 Years and Over	-4.7	2.4	3.1
Men	11.1	15.2	5.5
16-24 Years	45.3	14.8	-6.0
25-54 Years	4.1	18.0	11.4
55 Years and Over	4.7	5.3	0.1
Women	36.2	24.3	6.3
16-24 Years	76.3	26.0	-5.2
25-54 Years	24.4	24.5	12.3
55 Years and Over	33.0	20.9	3.7

Source: Denis F. Johnston, "The U.S. Labor Force: Projections to 1990." Monthly Labor Review, July 1973, Table 2, p. 5. Based on annual average data, comparable to CPS.

and early 1960's, as well as further increases in female labor force participation. The rate of labor force growth is, however, expected to decline sharply during the decade of the 1980's, mainly as a result of reduced entries into the labor force, reflecting the sharp reduction in births and birth rates during the 1960-70 decade. As a result the average annual percentage increase (arithmetically computed) will decline from 3.7% in the 1970-80 decade to 1.2% between 1980 and 1985. The shifts in labor force composition associated with these overall trends are described below:

Age -- Labor force growth will be most rapid in the 25-34 year age group, reflecting the maturing of this peak post-World War II age class. This age group of workers, which includes many who have begun or are beginning full-time work activity in the current decade upon completion of school or college, is projected to increase by 51.5% between 1970 and 1980 as contrasted to a projected increase of 18.5% for the total labor force. Conversely, the number of young workers aged 16-24 years will increase by only 19% in the 1970's, reflecting the initial impacts upon the labor force of the slowdown in birth rates which began in the early 1960's. Within the latter age group, the teen age labor force, age 16-19 years, will experience a particularly sharp reduction in its growth rate from 46.4% in the 1960-70 decade to only 9.1% between 1970 and 1980.

This pattern will be intensified during the 1980-85 period, which will experience the full impact upon labor force entries of the recent birth rate reductions. During this period, the number of 16-19 year olds in the labor force is projected to decline by 14.1%, while those in the 20-24 year age group, will drop by 2.8%. There will also be a sharp reduction in the rate of growth in the 25-34 year age group, from an average percentage annual increase of 5.2% in the 1970's, to 2.2% in the 1980-85 period.

The sharp reduction in new labor force entrants, implicit in these comparisons, has an important bearing upon the availability of workers for lower-level jobs, since -- as we have seen -- younger workers, and particularly those in the student age groups, have been a major and growing source for many of these jobs. It also has broader implications for the extent of adaptability of our labor supply to shifts in the economy's labor requirements in view of the much greater mobility of younger workers as evidenced by virtually all studies of worker mobility patterns.2/

Sex -- The BLS labor force projection assumes a slowing down in the overall growth of labor force participation of women during the period 1970-85, as compared to the preceding decade, partly based on the increased concentration of the female working age population in the 25-34 year age group, during which many women have not been available for work because of child rearing responsibilities. As a result, women are expected to account for a smaller percentage of total labor force gains than in the 1960's. This pattern will be accentuated for the civilian labor force, moreover, in view of the assumed reduction in armed forces active duty strengths from about 3.2 million in 1970 to 2.0 million in 1980 and 1985. Women workers, particularly those reentering the labor force after interruptions for marriage and child rearing, have

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2/ A recent review of this literature appears in the Manpower Report of the President for 1974, Chapter 4.

typically been constrained in their choices to lower status jobs, either in white collar or in blue collar or service occupations. Thus, between 1960 and 1970, there was a net increase of 250,000 in the number of adult white women workers, 25 years and over, in Group V occupations. The projected slowdown in growth in this source of labor supply can be expected to further contribute to a tightened labor supply situation in many low status service-type occupations, as well as lower paid clerical and sales occupations, which are predominantly staffed by women workers.

Race -- Based on our projections for the experienced civilian labor force, the proportion of non-white workers will increase from 10.7% in 1970 to 11.3% in 1980 and to 11.6% in 1985. This results from a lesser decline in non-white, than in white, birth rates during the early 1960's -- and hence, in a larger proportion of non-whites among new labor force entrants in the late 1970's and 1980's, as well as from an assumed reduction in the rate of decline in labor force participation of non-white men, as compared to the 1960-70 experience.

In view of the continued higher concentration of non-whites in low status occupations, an increase in their labor force proportion would be expected, other factors being equal, to augment the labor supply for lower-level jobs. This effect is likely to be more than offset, however, by the higher education level of new non-white entrants to the labor force and by a continuation of the exodus of black workers from the lowest-status "menial-type" occupations.

Educational Attainment -- The projections of the 1980 and 1985 experienced civilian labor force, by educational attainment, reflect a continued overall trend towards a more educated labor force as measured by length of formal schooling, with a further gradual narrowing in the educational gap between white and non-white workers. (Table 54.) Thus by 1985, 77.6% of all experienced workers in the civilian labor force, 25 years and over, will have completed at least 12 years of education as contrasted with only 48.3% in 1960, and 61.5% in 1970. The projected percentage of non-white workers, 25 years and over, with a completed high school education is expected to continue to rise sharply to 61.6% by 1985, and by that year will approximate the corresponding percentage among white workers in 1970.

It should be noted that no separate projections of educational attainment, for workers aged 16-24 years, have been developed for purposes of this study. This is due in part to the lack of comparable historical data on educational attainment for this age group of workers and, in part, to the much greater uncertainty surrounding projections of enrollment and educational attainment for this age class. Recent school enrollment trends suggest a continued increase in the proportion of youth completing a high school, but a pronounced slowdown in growth of the proportion enrolling in college, particularly in the case of white males. It is not clear whether these recent trends have been due to special circumstances, such as the termination of the draft and the 1970-71 recession, or whether they reflect a longer-range modification in attitudes towards the desirability of higher education, conditioned by the greater difficulty of recent college graduates in obtaining entry into higher status employment.

Table 54

Distribution of the Experienced Civilian Labor Force, 25 Years and Over, by Sex, Race and Educational Attainment: 1960, 1970 and Projected 1980, 1985

	Number 1/ (000)	Years of School Completed		
		Less than 12	12	13 and Ove
		Percent Distribution		
TOTAL, BOTH SEXES				
1960	54662	51.7	26.7	21.6
1970	60335	38.5	34.5	27.0
1980	73178	26.6	40.8	32.6
1985	80268	22.4	41.3	36.3
White				
1960	48999	49.2	28.0	22.8
1970	53952	36.3	35.5	28.2
1980	65078	24.5	41.8	33.7
1985	71108	20.3	42.2	37.5
Non-White				
1960	5663	72.8	15.9	11.3
1970	6383	57.2	26.4	16.4
1980	8100	43.8	32.5	23.7
1985	9160	38.4	34.7	26.9
MALE, TOTAL				
1960	37566	53.9	24.3	21.8
1970	38929	39.9	31.5	28.6
1980	45834	27.2	37.5	35.3
1985	50027	22.5	38.3	39.2
White				
1960	34132	51.7	25.3	23.0
1970	35283	37.8	32.2	30.0
1980	41160	25.1	38.2	36.7
1985	44716	20.4	38.8	40.8
Non-White				
1960	3434	76.0	14.0	10.0
1970	3646	60.5	23.7	15.8
1980	4614	45.8	31.2	23.0
1985	5311	40.0	34.2	25.8
FEMALE, TOTAL				
1960	17094	46.9	32.0	21.1
1970	21396	35.9	40.1	24.0
1980	27344	25.6	46.3	25.1
1985	30241	22.3	46.1	31.6
White				
1960	14865	43.1	34.0	22.3
1970	18659	33.4	41.6	25.0
1980	23918	23.4	48.1	28.5
1985	26392	20.2	47.7	32.1
Non-White				
1960	2229	68.0	18.8	13.2
1970	2737	52.6	30.0	17.4
1980	3426	41.0	34.3	24.7
1985	3849	36.4	35.4	28.2

1/ Based on decennial Census data. For description, see text.

2. Projected Distribution of Labor Force by Occupation

The general method followed in our projections of the "expected" occupational distribution of the labor force was to examine the 1960-70 changes in the occupational distribution of workers, stratified by age group, sex and educational attainment, and to extrapolate the "occupational participation rates," i.e., percentages in specific occupations of each of these subgroups to 1980 and 1985.

Two broad age groups were employed for this purpose: ages 16-24 and ages 25 and over. The occupational participation rate trends for the age 16-24 group in 1960-70 by sex were further disaggregated for workers in the following more specific age groupings: 16-17 years, 18-19 years and 20-24 years, based on available published decennial Census data, and then separately extrapolated to 1980 and 1985. This further disaggregation was considered desirable because of the pronounced contrast in labor force growth trends projected for teen-aged workers, as compared to those aged 20-24 years, and because the former group included a large proportion of part-time student workers who have been differentially concentrated in many lower-level occupations. The projections for workers 25 years and over were disaggregated by sex, race (white and non-white) and by three broad educational attainment groups (less than 12 years, 12 years and 13 or more years of school completed).

The method used in extrapolating occupatonal participation rates (OPR) for each of these demographic groups premises a declining rate of change in these occupational participation rates, as compared to that experienced in the 1960-70 decade. This assumption appears reasonable because of some of the unique characteristics of the 1960-70 decade, i.e., (1) the shift

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from an economy operating well below full employment levels at the beginning of the decade to one characterized by much higher levels of aggregate labor demand, at the end of the decade; and (2) the significant breakthrough in occupational opportunities for many black workers during the decade, as a consequence of the "Civil Rights Revolution" and of related socio-economic factors. Alternative procedures, such as those based primarily on a simple linear extrapolation of trends in occupational participation rates were initially followed in our preliminary (Phase I) projections to 1980, but proved inappropriate when extended to 1985 since this method would -- in some instances -- have resulted in negative occupational participation rates for some population subgroups, e.g., for youth in farm occupations.

The actual formula used defines the occupational participation rate as the percentage of workers in a given population subgroup (j), who are in a given occupation group. Given the rates for 1960 and 1970, the rates in any subsequent year are determined by the following formula:

$$OPR_{ij} = a+b \log (TIME)$$

where for 1960 TIME = 1; for 1970, TIME = 11; for 1980, TIME = 21; and for 1985, TIME = 26

This formulation implies that the rate of change decreases over time at the rate of -b/TIME. The parameter b is estimated as follows:

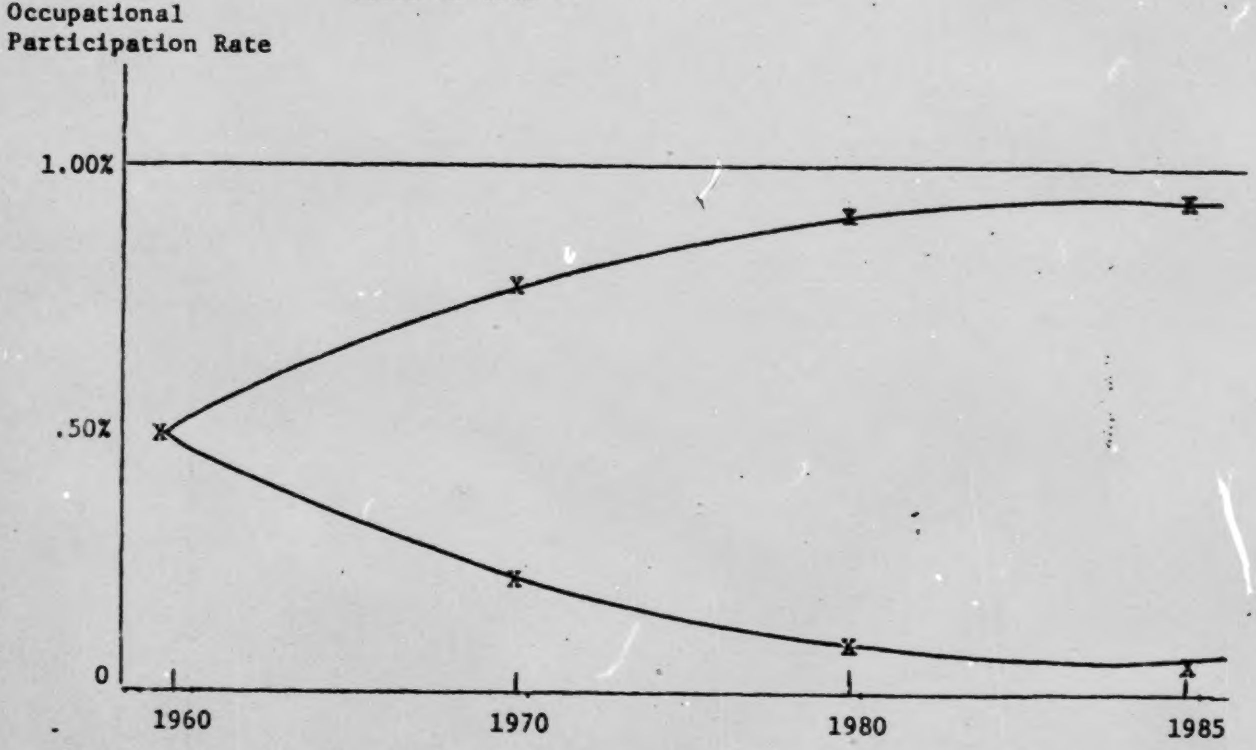
(1) for rates which increased between 1960 and 1970, b = [OPR(70)-OPR(60)]/log (11)

(2) for rates which decreased between 1960 and 1970, b = [OPR(60) - OPR(70)]/log (11)

For increasing rates a equals the rate in 1960; for decreasing rates, a is equal to minus that rate in 1960.

The implied shape of the functions relating occupational participation rates to time is demonstrated in Figure 1, for both an increasing and declining rate. In each instance, the 1960-70 trend is continued, but at a progressively declining rate of change.[1/] The effect of the procedure, thus, is to give much greater weight in the resulting occupational labor force trend projections to the effects of inherently more reliable projections of trends in the demographic composition of the labor force, as contrasted to the more uncertain trends in occupational participation rates.

Figure 1. Illustrative Projections of Occupational Participation Rates to 1985



[1/] The authors are indebted to Mark Kendall of the National Planning Association for development of this procedure and for supervising its application.

A closely related methodological consideration was to define the level of occupational grouping which is relevant in any attempt to project future occupational labor supplies. In our initial efforts, separate projections were developed for each of the 57 occupational subgroups used in our occupational status classification scheme. We suggested, however, that any attempt to project occupational supply-demand imbalances, at this level of detail, was not likely to prove meaningful, particularly within the lower level occupational categories, because of evidence of the high degree of occupational adaptability of American workers to changing patterns of employment opportunity.[1] Thus, in its 1966 survey of 5,000 men workers aged 45 to 59, the Census-Ohio State University National Longitudinal Survey found that only 13 percent were in the same 3-digit occupation as that of their first post-school job. As might be expected, a majority of these men, 57 percent, had moved up the job ladder in the course of their work careers to occupations of significantly higher status (i.e., with SES scores 15 points or more higher, based on the Duncan socioeconomic index), while an additional 15 percent had moved laterally. Only 15 percent of these men had moved to significantly lower status occupations.[2] A more detailed analysis of these occupational shifts indicated that most of the movements across major occupational groups were among broadly related categories of occupations. Among men who began their careers as professionals, most of the movers went into other white collar jobs, primarily managers and proprietors. Among those who began as operatives, the most frequent moves were to other blue collar or to service occupations.

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[1] Phase I Report, pp. 254-5.

[2] The Pre-Retirement Years, Vol. 1, p. 129.

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These survey findings, as well as collateral research, thus suggest that disparities between the projected growth of labor supply and of labor demand among occupations with substantially similar status and wage levels are likely to be readily corrected through normal labor market processes, particularly if such occupations are found in the same local labor markets and utilize similar sources of labor supply. By the same token, imbalances among occupational status groups, which would require a substantial lowering of occupational status or wage levels for sizable groups of workers, would be more difficult to correct under conditions of high aggregate labor demand. In particular, mature workers, with substantial investments in education, training and job experience (who will account for a growing proportion of the future work force) would be particularly reluctant to accept a substantial lowering of occupational status, except after protracted periods of job search.

Based on the above reasoning, the projections of the "expected" experienced civilian labor force, although derived from more detailed estimates for some 17 occupational subgroups, are limited in this chapter to date for the five major occupational status groups, and -- separately -- for ten standard major Census occupation groups. The major trends are summarized below.

(1.) Occupational Status Group

The proportion of workers who will be available in the two higher status groups, Groups I and II will continued to grow, from 47.2% in 1970 to 53.8% of the experienced civilian labor force in 1985, reflecting the combined effect of such factors as increased education, the reduced proportion of youth in the labor force and the projected continuation of the 1960-70 pattern of upward mobility of non-white workers. The proportion in Group III which includes mainly craftsmen and certain higher-paid operative occupations, would remain relatively stable, comprising 19.7% of the experienced civilian labor force in 1985, as compared to 21.1% in 1970. Conversely, those in the two lowest occupational status groups, Groups IV and V are expected to decline, from 31.6% in 1970 to less than 26.6% in 1985. (Table 55.)

These shifts in the potential availability of workers by broad status group result from the sharply divergent projected rates of growth, among these groups -- ranging from projected 1970-85 percentage increases of 66% and 40% for Groups I and II, respectively, to 12% for Group IV and only 3% for Group V. The projected trends for men and women workers are generally parallel. However, growth rates for women workers in Group III and IV occupations are expected to be significantly greater than for men. The number of women workers available in these two categories is projected to increase by about 24% between 1970 and 1985, as compared to an increase of about 15% for men workers.

The impact of changes in the size and composition of the labor force upon availability of workers for low-level occupations is likely to be most pronounced during the 1980-85 period, when overall labor force growth rates will decline sharply. Thus, as compared to a projected increase of 6.6% in the total experienced civilian labor force between 1980 and 1985, the number of workers available for Group V occupations is expected to decline by nearly 3%, while those in Group IV category would increase by less than

Table 55

Projections of the Experienced Civilian Labor Force by Major Occupational Status Group and Sex: Actual, 1970, Projected, 1980 and 1985 1/

Occupational Status Group	Number (millions)			Percent Distribution			Percent Changes		
	1970	1980	1985	1970	1980	1985	1970-85	1970-80	1980-85
Total, Both Sexes	75.1	91.5	97.5	100.0	100.0	100.0	29.8	21.8	6.6
Group I	10.6	15.1	17.6	14.2	16.5	18.1	65.8	41.4	17.2
Group II	24.8	32.0	34.8	33.0	35.0	35.7	40.1	28.9	8.7
Group III	15.9	18.4	19.2	21.1	20.1	19.7	21.1	16.2	4.2
Group IV	15.6	17.3	17.4	20.7	18.9	17.9	11.9	11.2	0.7
Group V	8.2	8.7	8.5	10.9	9.5	8.7	2.9	5.9	-2.8
Males, Total	47.0	56.0	59.5	100.0	100.0	100.0	26.6	19.1	6.3
Group I	6.3	8.9	10.4	13.4	15.9	17.5	65.4	41.3	17.0
Group II	12.1	15.4	17.0	25.8	27.4	28.5	39.9	26.7	10.5
Group III	13.2	15.1	15.7	28.2	27.0	26.4	18.9	14.4	3.9
Group IV	10.0	10.9	10.9	21.4	19.5	18.4	9.0	8.8	0.2
Group V	5.3	5.7	5.5	11.3	10.1	9.2	2.6	6.6	-3.7
Females, Total	28.1	35.5	38.0	100.0	100.0	100.0	35.2	26.3	7.0
Group I	4.4	6.2	7.3	15.5	17.4	19.1	66.3	41.6	17.5
Group II	12.7	16.6	17.8	45.2	46.8	46.8	40.3	31.0	7.1
Group III	2.6	3.3	3.5	9.4	9.3	9.1	32.0	25.3	5.3
Group IV	5.5	6.4	6.5	19.7	18.0	17.1	17.3	15.4	1.6
Group V	2.9	3.0	3.0	10.3	8.5	7.9	3.4	4.7	-1.2

1/ Data for 1970 adapted from U.S. Census of Population, public-use samples for adjustment methods, see Phase I Report, pp. 124-80 and Technical Appendix. Data exclude workers not reported by occupation.

one percent. The major factor contributing to the decline in the Group V labor force between 1980 and 1985 is the projected reduction in the number of younger workers aged 16-24, an age group which -- as we have seen -- has contributed disproportionately to the supply of workers for many lower-level occupations.

(2.) Census Occupation Groups

Tables 56 to 58 present comparable projections for ten major Census occupation groups. Even this limited disaggregation of our occupational labor force projections indicates a broader disparity in potential labor supply growth rates than reflected in the trends for the five broad status groupings. The supply of professional and technical workers -- corresponding to Group I in our status classification -- is projected to increase by nearly 66% between 1970 and 1985, more than twice as rapidly as the overall rate of growth of the experienced civilian labor force. Two other white collar occupation groups -- managers and administrators and clerical workers -- are also projected to experience above average rates of growth in labor supply. Sales workers, however, are expected to grow at a significantly lower rate, partly because of the reduced proportion of youth in the labor force, who now fill a significant proportion of the lower paid jobs in this occupation.

Table 56

Projections of the Experienced Civilian Labor Force, by Census Occupation Group: Actual, 1970; Projected, 1980, 1985
BOTH SEXES

Census Occupation Group	Number (Millions)			Percent Distribution			Percent Change		
	1970	1980	1985	1970	1980	1985	1970-85	1970-80	1980-85
TOTAL, BOTH SEXES	75.1	91.5	97.5	100.0	100.0	100.0	29.8	21.8	6.6
White Collar Workers:									
Professional and Technical	10.6	15.1	17.6	14.2	16.5	18.2	65.8	41.4	17.2
Managers and Administrators	6.4	8.4	9.5	8.5	9.1	9.7	47.5	30.2	13.2
Sales Workers	8.0	9.9	10.2	10.7	10.8	10.4	27.2	23.2	3.2
Clerical Workers	11.8	15.4	16.6	15.7	16.9	17.0	40.5	30.5	7.6
Blue Collar Workers:									
Craft and Kindred Workers	10.5	12.2	12.8	13.9	13.3	13.1	21.9	16.4	4.7
Transport Operatives	2.7	3.0	3.0	3.6	3.3	3.0	9.5	10.3	-0.7
Operatives (excl. Transport)	10.3	11.5	11.8	13.7	12.6	12.1	14.8	11.9	2.6
Non-Farm Laborers	3.4	3.8	3.6	4.6	4.1	3.7	6.0	9.0	-2.8
Services Workers, Total	8.6	9.9	10.1	11.4	10.8	10.3	12.1	14.9	1.9
Farm Workers, Total	2.7	2.5	2.4	3.6	2.7	2.4	-13.0	-9.3	-4.0

Table 57

Projections of the Experienced Civilian Labor Force, by Census Occupation Group: Actual, 1970; Projected, 1980,1985

MALE WORKERS

Census Occupation Group	Number (Millions)			Percent Distribution			Percent Change		
	1970	1980	1985	1970	1980	1985	1970-85	1970-80	1980-85
TOTAL, MALE	47.0	56.0	59.5	100.0	100.0	100.0	26.6	19.1	6.3
White Collar Workers:									
Professional and Technical	6.3	8.9	10.4	13.4	15.9	17.5	65.4	41.3	17.0
Managers and Administrators	5.4	7.0	8.0	11.5	12.6	13.4	47.5	29.9	13.5
Sales Workers	3.3	4.0	4.3	7.0	7.2	7.3	32.5	23.5	7.3
Clerical Workers	4.4	5.2	5.4	9.0	9.3	9.1	27.7	22.8	4.0
Blue Collar Workers:									
Craft and Kindred Workers	10.0	11.6	12.1	21.3	20.7	20.4	21.2	15.9	4.6
Transport Operatives	2.0	2.1	2.1	4.3	3.8	3.6	5.2	4.4	0.7
Operatives (excl. Transport)	7.0	7.8	8.0	14.8	13.9	13.5	15.2	12.2	2.7
Non-Farm Laborers	3.2	3.5	3.4	6.8	6.2	5.6	4.5	7.9	-3.1
Service Workers, Total	3.1	3.6	3.6	6.7	6.5	6.1	15.4	15.2	0.2
Farm Workers, Total	2.5	2.4	2.1	5.2	4.0	3.6	-13.3	-9.5	-4.1

Table 58

Projections of the Experienced Civilian Labor Force, by Census Occupation Group: Actual, 1970; Projected, 1980, 1985

FEMALE WORKERS

Census Occupation Group	Number (Millions)			Percent Distribution			Percent Change		
	1970	1980	1985	1970	1980	1985	1970-85	1970-80	1980-85
TOTAL, FEMALE	28.1	35.5	38.0	100.0	100.0	100.0	35.2	26.3	7.0
White Collar Workers:									
Professional and Technical	4.4	6.2	7.3	15.5	17.4	19.1	66.3	41.6	17.5
Managers and Administrators	1.0	1.3	1.5	3.6	3.7	3.7	47.4	31.9	11.8
Sales Workers	4.7	5.8	5.8	16.8	16.4	15.4	23.4	22.9	0.4
Clerical Workers	7.6	10.2	11.2	27.0	28.8	29.5	47.6	34.9	9.5
Blue Collar Workers:									
Craft and Kindred Workers	0.5	0.6	0.6	1.6	1.7	1.7	37.6	28.2	7.3
Transport Operatives	0.7	0.9	0.8	2.4	2.4	2.2	22.6	27.8	-4.0
Operatives (excl. Transport)	3.3	3.7	3.8	11.9	10.4	10.0	13.8	11.1	2.4
Non-Farm Laborers	0.2	0.3	0.3	0.8	0.8	0.8	26.5	24.8	1.4
Service Workers, Total	5.5	6.3	6.4	19.4	17.6	16.9	18.1	14.8	2.9
Farm Workers, Total	0.3	0.3	0.3	1.0	0.8	0.7	-10.0	-3.2	-7.0

All of the blue collar occupation categories are projected to have a less-than-average increase in labor force in this period 1970-85, ranging from 22% for craftsmen to only 6% for non-farm laborers. The service workers occupation group, which encompasses a particularly heterogenous range of occupations in terms of pay and status, is projected to grow by 12% while workers available for farm occupations are expected to decline by 13%, continuing their long-term declining trend.

C. Comparison of Occupational Labor Force and Employment Projections

The Bureau of Labor Statistics has, for a number of decades, conducted a program of long range forecasting of employment by occupation for use in its occupational outlook studies and for related purposes. The most recent of these projections, published in summary form in December 1973, were adapted for use in comparison with our projected trends in labor force availability by occupational group. The BLS employment projections, which are linked to the BLS labor force projections cited above, assume that "fiscal, monetary and manpower training and educational programs will achieve a satisfactory balance between relatively low unemployment and relative price stability," as illustrated by an assumed four percent unemployment rate and a three percent annual increase in the implicit GNP price deflator. Another key assumption is that efforts to solve environmental problems and energy shortages "may consume more productive resources but will not have more than a marginal effect on long-term economic growth."[1]

The methodology followed in the BLS projections includes the following major steps: (1) gross national product is derived as the product of three major variables: projected total employment, projected hours of work and projections of output per man-hour; (2) GNP is distributed through use of a macroeconomic model which extrapolates trends in major GNP components, along with selected exogenous estimates, e.g., for governmental expenditures; (3) employment estimates by industry are based on an input-output matrix, which translates potential demand for all final goods and services into industry output requirements and -- in turn -- into employment requirements, and (4) employment by occupation is derived from occupational staffing patterns by industry (occupation-industry matrices) for 1960 and 1970, which are extrapolated to 1985, and modified by more specific data on employment and technological trends by occupation where pertinent.

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[1] Jack Alterman, "The United States Economy in 1985: An Overview of BLS Projections," Monthly Labor Review, December 1973, pp. 4-5.

The resulting projections may generally be described as estimates of prospective demand for workers by occupation in a full employment economy, based on the stated assumptions. It should be noted, however, that labor supply considerations have at least indirectly influenced the BLS occupational estimates, to the extent, for example, that past shifts in unit labor requirements and in occupational staffing patterns for particular industries have been influenced by the relative supply of labor for these industries and occupations. In effect, however, the BLS methodology assumes that these forces will tend to operate in the same manner in the future, as in the past, and makes no direct allowance for the effect of changes in exogenous labor supply factors, such as those described in the preceding section. For this reason, it seems appropriate to compare these "demand-oriented" projections with our own estimates of the expected supply of workers by broad occupational group, as a means of identifying prospective occupational imbalances.

In adapting the BLS occupational employment projections for this purpose, it was necessary to disaggregate a number of BLS occupations and to combine others to correspond to the occupational status groups used in the present study. These were based generally on an assumption of fixed relationships between component occupations and the larger occupation/industry groups, based on 1960 and 1970 data. Thus, in the case of our groups of operatives, by industry cluster, specialized industry-occupation matrices were developed from the 1960 and 1970 data, and extrapolated to 1985, using the corresponding BLS employment projections by industry and occupation as controls.

The resulting employment projections by occupational status group for 1980 and 1985 are expressed as percentage changes, in Table 59, over corresponding BLS estimates for 1970, rather than in absolute numbers, mainly because the latter represent annual average employment estimates, comparable with CPS levels, whereas our projections of the experienced civilian labor force have been adjusted for comparability with decennial Census data, exclusive of workers whose detailed occupation was not reported.[1/]

The comparisons for the entire period 1970-85 in Table 59 indicate a large potential surplus of available workers for Group I occupations resulting from a projected labor force growth of 66% as compared to 51% in projected employment. At the lower extreme of the job structure, the growth in potential requirements for Group IV and Group V occupations is expected to exceed the projected growth of available workers by 6.4% and 2.6%, respectively. The trends for the two

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[1/] The small differences between the projected overall percentage growth in the labc force and in employment shown in this table are the net result of differences in the projected unemployment rate and armed forces levels, as compared to 1970, and the various statistical adjustments made in moving from annual average civilian labor force levels for 1980 and 1985 to the decennial Census-based estimates of the experienced civilian labor force.

Table 59

Comparison of Projected Percentage Changes in Labor Force and Employment by Major Occupational Status Group, 1970-85

	Experienced Civilian Labor Force			Employment 1/			Difference (ECLF-Employment)		
	1970-85	1970-80	1980-85	1970-85	1970-80	1980-85	1970-85	1970-80	1980-85
TOTAL	29.8	21.8	6.6	29.3	21.0	6.1	0.5	0.8	0.5
Group I	65.8	41.4	17.2	50.5	35.0	11.6	15.3	6.4	5.6
Group II	40.1	28.9	8.7	41.3	32.3	7.0	-1.2	-3.4	1.7
Group III	21.1	16.2	4.2	19.0	13.0	5.4	2.1	3.2	-1.2
Group IV	11.9	11.2	0.7	18.3	14.3	4.1	-6.4	-3.1	-3.4
Group V	2.9	5.9	-2.8	5.5	7.0	-1.3	-2.6	-1.1	-1.5

1/ Adapted from unpublished BLS projections of detailed occupation by industry, compatible with December 1973 BLS labor force and employment projections. For adjustment procedures, see text.

intermediate occupational studies groups -- Group II and III -- are in closer overall balance.

The disparity between a projected "surplus" of workers in high-level jobs, and a "shortage", in lower level jobs, is more clearly evident in the comparisons for the 1980-85 period. Both the Group I and II occupations -- which correspond closely to the "white collar" category -- exclusive of such jobs as shipping clerks and messengers -- are expected to experience a more rapid growth in labor supply than in jobs; while Groups III-V would all experience deficits in labor force growth as compared to projected job needs.

Similar comparisons of projected labor force and employment trends are presented in Table 60 based on the standard Census occupational groups. These comparisons indicate wider divergences between labor force and employment growth rates between 1970 and 1985 than those based on our broader status groupings. Among the white collar occupations, labor supply growth is expected to substantially exceed employment growth in three groups -- professional and technical workers, non-farm managers and clerical workers. Labor force growth, however, is expected to lag behind demand in the case of sales workers, reflecting the large projected employment growth in this occupational group, as well as the fact that our labor force projections indicate a somewhat less-than-average growth in supply. The latter is attributable mainly to the reduced labor force growth of youth and women, who have staffed a large proportion of the lower-paid sales jobs in recent decades.

Table 60

Comparison of Projected Percentage Changes in Labor Force and Employment: 1970-85 by Census One-Digit Occupation Groups

Census Occupation Group	Percent Changes, 1970-1985								
	Experienced Civilian Labor Force			Employment 1/			Differences		
	(1) 1970-85	(2) 1970-80	(3) 1980-85	(4) 1970-85	(5) 1970-80	(6) 1980-85	(1-4)	(2-5)	(3-6)
EXPERIENCED CIVILIAN LABOR FORCE	29.8	21.8	6.6	29.6	23.3	5.9	0.2	-1.5	0.7
Professional, Technical and Kindred	65.8	41.4	17.2	53.3	35.3	13.3	12.5	6.1	3.9
Non-Farm Managers	47.5	30.2	13.2	27.4	22.5	4.0	20.1	7.7	9.2
Clerical Workers	45.5	32.5	9.8	33.3	29.2	3.2	12.2	3.3	6.6
Sales Workers	27.2	23.2	3.2	44.0	30.8	10.1	-16.8	-7.6	-6.9
Craftsmen, Foremen and Kindred	23.6	17.5	5.2	30.2	22.2	6.6	-6.6	-4.7	-1.4
Operatives (incl. Transport)	18.3	15.8	2.2	13.8	11.6	2.0	4.5	4.2	0.2
Non-Farm Laborers	7.4	10.3	-2.6	6.0	6.0	0.0	1.4	4.3	-2.6
Service Workers	17.1	14.9	1.9	33.1	26.2	5.5	-16.0	-11.3	-3.6
Farm Workers, Total	-19.3	-12.1	-8.2	-41.9	-27.3	-20.0	22.6	15.2	11.8

1/ 1970 employment data by occupation group based on unpublished BLS estimates adjusted for comparability with published estimates since January 1971, based on revised occupational classification and enumeration procedures.

Table 61

Comparisons of BLS Employment Projections by Occupation Group, 1970-80, with Actual Employment Trends, 1970-74 (Annual Rates)

Occupation Group	BLS Projections 1970-80		Actual Employment Change 1970-74 1/	Differences	
	1970 Projections	1973 Projections		1973 Projections Minus 1970 Projections	Actual Change 1970-74, Minus 1973 Projections
Total	1.9	2.0	2.3	0.1	0.3
Professional and Technical	3.4	3.1	2.7	-0.3	-0.4
Managers, Non-Farm	1.4	1.8	1.3	0.4	-0.5
Sales	2.1	2.6	2.7	0.5	0.1
Clerical	2.4	2.7	2.4	0.3	-0.3
Craft and Kindred	1.9	2.0	3.5	0.1	1.5
Operatives, Including Transport	1.0	1.1	0.9	0.1	-0.2
Non-Farm Laborers	-0.6	0.6	0.8	-1.2	0.2
Service Workers	3.0	2.4	3.1	-0.6	0.7
Farm Workers	-1.8	-3.1	2.6	-1.3	5.7

1/ Based on revised 1970 employment estimates, by occupation group, adjusted for comparability with data for 1971-74.

In the case of the remaining Census occupational groups, these comparisons suggest prospective deficits in labor force growth in two occupational groups, service workers (-16.0%) and craftsmen (-6.6%), in contrast to a projected large surplus of farm workers. In the latter occupational group, this is a consequence of a projected sharp reduction, of 41.9%, in farm employment, as compared to a smaller projected reduction, of 19.3%, in our farm labor force estimates.[1] The comparisons for the two remaining occupational groups -- operatives and non-farm laborers -- suggest a closer correspondence between labor force and employment trends for the entire 1970-85 period than for any of the other Census major occupation groups. However, in the case of non-farm laborers, a projected "surplus" in labor force growth during the 1970-80 period of over 4%, would be reversed in the 1980-85 period, reflecting the reduced number of younger workers available for such jobs.

The extent to which the above comparisons provide a meaningful indicator of possible future labor market difficulties depends, in part, upon the degree of confidence which can be placed on any longer-term projections of labor demand, as well as of labor supply, by occupation. It is therefore moot to enquire into the reliability of the BLS projections of employment, by occupation. Three sets of comparisons are available for this purpose: (1) a retroactive comparison of earlier BLS projections for the decase of the 1960's with actual employment trends; (2) a comparison between two recent BLS projections of employment by occupation for 1980; and (3) a comparison between the current projection for the entire decade of the 1970's with actual employment trends in the period 1970-74.

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[1] It is probable that the BLS projection for farm employment will be substantially increased in forthcoming revisions, as a result of recent trends in agricultural production, prices and employment.

For the first of these comparisons, we have available an assessment by Sol Swerdloff, who compared BLS projections for 1970, issued early in the 1960's, with actual trends during the decade. These projections, as of 1960, could not anticipate the massive increases in defense spending for the VietNam War and for space exploration, or the extent of increased federal funding in areas such as education, health and allied social services. Nor did they allow, in the case of such occupations as domestic service, for the impact of labor supply factors upon actual employment trends, which resulted in an unexpected decline in household employment, attributed by Swerdloff to "unwillingness on the part of young better-educated Negro women to accept domestic work as do many older Negro women." 1/

Despite these limitations, Swerdloff concluded that "the broad occupational trends projected in the 1960 report have materialized pretty well." Specifically, employment increased most rapidly in the white collar occupations; blue collar and service worker employment experienced a more moderate growth, with virtually no increase for non-farm laborers; and farm employment declined sharply. All of these broader trends were in accordance with the predicted general pattern of occupational employment growth. However, deviations between "actual" and "projected" for some of the individual occupational groups, such as household workers and farm workers, were quite substantial.

1/ Sol Swerdloff, "How Good were Manpower Projections for the 1960's," Monthly Labor Review, November 1965, pp. 17-22.

A second set of comparisons can be made between two successive BLS projections for 1980: the first, published in 1970 and using 1968 data as a point of departure; the second, published in December 1973, and based on actual data for 1972. These are shown in Table 61 for nine major Census occupation groups. It will be evident that, as in the previous comparison, the differential pattern of employment growth by major occupation remained fairly consistent. Notably, most white collar groups -- as well as service occupations -- were expected to experience above-average employment growth under both projections; craftsmen were expected to grow at a rate identical with that of total employment in each projection; while the other occupational groups including operatives, non-farm laborers and farm workers, were expected to experience below-average growth or to decline. The deviation in projected annual growth rates between the two sets of projections was 0.4% or less for five of the nine major occupational groups; on the other hand, it was quite large for non-farm laborers and farm workers: -1.2% and -1.3%, respectively.

The final set of comparisons shows the difference between the projected annual growth rate between 1970 and 1980, based on the most recent 1973 projections and the actual rate in the period 1970-74. In this comparison, it should be noted that total civilian employment grew at an annual rate of 2.3% between 1970-74, as compared to a projected rate of 2.0% for the entire decade, 1970-80. The difference is attributable in part to higher-than-projected rates of growth in the female labor force, and in part to the projected slowdown in labor force growth in the latter years of the current decade, as a consequence of the reduced size of the population groups expected to reach working age. In addition, the year 1974 was marked by the onset of a major economic recession, reflected in an increase in the unemployment rate from an annual average of 4.9% in 1973 to 5.6% in 1974 -- as contrasted to a

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"full-employment" unemployment rate of 4.0% assumed by BLS in its most recent projection for 1980. Nevertheless, the differences between projected and actual employment growth trends do suggest possible limitations of the BLS projections, for our present purposes. Generally, employment in most white collar occupations grew at a slower-than-projected rate during the period 1970-74. It increased significantly -- rather than declining -- in the case of farm workers; and it grew more rapidly than expected in two other occupational groups: craftsmen and service workers. A continuation of the 1970-74 trends, as compared to those reflected in the most recent BLS projections for 1980 and 1985, would in turn have the following implications for our assessment of prospective labor force imbalances by occupation:

1) The prospective surplus of workers seeking jobs in the preferred collar occupations -- professional, managerial and clerical -- would be greater than implied in Tables 59 and 60.

2) The prospective "shortage" of workers for service and crafts occupations would be increased.

3) The projected "surplus" of farm workers would in fact also become a "shortage" situation, if the increase in demand for farm workers, as reflected in recent employment trends, were to persist.

The trends observed in the past several years would thus, if continued, have the effect of intensifying some of the imbalances suggested by our initial comparisons, based on the 1973 BLS employment projections. At the same time, the hazardous nature of longer-term manpower projections will be quite evident. The most critical uncertainty lies, of course, in the extent of deviation of aggregate economic activity from a full-employment path. In an economy burdened by an unemployment rate in excess of 9% in May 1975, the most pressing labor market problems are clearly those resulting from inadequate demand for nearly all occupations, and this is likely to continue to be true so long as unemployment rates persist at or near recent levels. Even if satisfactory economic growth levels are restored later in the decade, such factors as increased costs of energy and other raw materials as well as the scope and direction of federal energy programs, may significantly affect differential growth rates in particular industries and occupations. Until our longer-term energy program goals and the direction of related economic and fiscal policies become more clearly defined, longer-term economic and manpower needs projections will be subject to particularly wide margins of uncertainty.

The hazards of longer-term projections of manpower demand are compounded when such projections are in turn used as a basis of comparison with projections of potential labor supply by occupation. The limitations of the latter projections have been discussed earlier in this chapter, including — particularly -- our limited knowledge concerning the adaptability of the labor force to conditions in which relative surpluses of workers develop for the more desirable, higher status occupations as contrasted to potential deficits in lower status jobs.

The above cautions inevitably lead one to the ultimate question as to the potential usefulness of any systematic effort to anticipate future trends in manpower supply and demand, by occupation, in a dynamic and complex society. Howard R. Bowen, in a recent provocative article, has challenged certain assumptions underlying such projections, including -- among others -- the premises that "the character of the economy and its skill requirements can be predicted for periods long enough to be pertinent to educational planning" and that "the economy requires a more or less fixed

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inventory of occupational skills at each state in its evolution." Bowen contends that there will be an accommodation between the economy's needs for goods and services, and the types of jobs which workers in that society want to do; i.e., between labor demand and labor supply factors.

> "The economy adjusts to the manpower available. Every economy learns to use its particular mix. If it cannot get people to do repetitive assembly-line jobs, incentives are created to automate or change these jobs. If it cannot get people to do stoop labor or dig ditches, it has incentives to invent and substitute suitable machines. If it cannot find people to be pliant household servants, it simply goes without them and produces packaged foods, household appliances, and housing of different size and design. If it cannot find people to collect garbage, it will invent new ways to handle solid waste disposal or, better yet, to eliminate unnecessary containers, Sunday papers, and other refuse that use up precious resources and degrade the environoment." 1/

Thus, any labor market pressures or "shortages" resulting from a reduced availability of workers for certain unpleasant jobs would result in an accommodation of the economy -- either through appropriate wage rate adjustments or through product substitution, increased capital intensity or simply doing without certain market goods and services. These complex interactions are difficult, or perhaps impossible, to quantify in a single comprehensive model of the occupational labor market.

Despite these limitations, the broad imbalance between the occupational distribution of the labor force implied by our demographic-based projections and that resulting from projections of labor demand by occupation under "full employment" conditions does suggest that some significant adjustments may be required. Our review of recent 1970-74 experience, as well as the inherently conservative assumptions underlying our demographic-based projections of labor force by occupation status group, suggest that the resulting comparisons may well have understated, rather than overstated, the potential

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1/ Howard R. Bowen, "Manpower Management and Higher Education", Educational Record, Vol. 54 No. 1, 1973, p. 10.

for future imbalances under full employment conditions. The nature of the resulting adjustments in turn can be expected to depend upon the respective elasticities of supply and demand for labor in particular industries and occupations. If the supply of labor for a particular occupation is highly elastic, a relatively small differential increase in wages would attract the additional workers needed. On the other hand, if the supply of workers is relatively inelastic and employers are not in a position to -- or choose not to -- substantially increase relative wage levels, or modify conditions of work to make these jobs more attractive, employment will be reduced. In the latter case, as suggested by Bowen, the needs of the economy may still be met in a variety of ways: by product substitution, by substitution of capital for labor, by changing the skill-mix of workers required to produce a particular good or service by industrial relocation, or by increased reliance upon imports. Other possible adjustments include modifications in employee recruitment and selection standards, increased use of part-time workers, or relaxation of immigration restrictions upon entry of "low'level" manpower.

We can anticipate, based on past experience, that, to the extent needed, some combination of these forms of adjustment will occur over a period of time and that the particular path taken will vary from industry to industry, and from area to area, depending upon a number of economic, social and technological variables. Although any attempt to systematically forecast these possible adjustments over the full range of occupations is not practicable, some insights as to their possible direction can be derived both from our previous analysis of the sensitivity of relative wages to various labor supply factors (Chapter IV) and from a more detailed review of recent experience in selected lower level occupations, in the following chapter.

Chapter VI

Alternative Patterns of Labor Market Adjustment: Four Case Studies

In Chapter IV, we described the efforts to deduce, through econometric analysis of cross-sectional data, the impact of socio-demographic variables and of related labor supply variables upon relative wages and employment in a number of lower level occupations. It has been apparent that these labor supply variables have not operated in a uniform and consistent manner upon occupational wage differentials and/or employment. Even after allowance for imperfections in both the empirical data base and in model specifications, it appears likely that a fundamental limitation to this cross-sectional approach has been its inability to take into account the full range of relevant market and institutional factors operating dynamically to influence labor supply, labor demand and wages in various occupations and labor markets.

To provide some additional insights of the latter type we have selected four occupations for more intensive examination on a "case study" basis. These are: household maids, construction laborers, apparel operatives and hospital attendants. Our selection of these occupations was designed to provide:

(1) A range of status levels from very low status Group V occupations, such as household maids, to somewhat higher status Group IV occupations, such as hospital attendants.

(2) Comparisons between predominantly "male type" occupations, such as construction laborers, and occupations with predominantly female staffing.

(3) Industry representation, to include both occupations in service industries and those in goods producing industries.

(4) Contrasts between rapidly growing occupations, such as hospital attendants and those with static or declining employment levels.

In each of these occupations, we have examined relevant data on the characteristics of the occupation, recent employment and wage trends, and changes in labor force composition. The interaction of these and other factors has been analyzed by use of econometric models, where applicable. Based on these analyses and on prospective trends in labor force growth, some inferences have been made concerning future employment and wage trends. Supplemental, more detailed reports on hospital attendants (by Rosenthal and Sommers), and on domestic maids (by Mattila) are included in the Appendix.[1]

A. Household Maids

Occupational Characteristics

Household maids, or domestics, are defined in this report to include persons working for hire in private households, in performance of cleaning, laundering, cooking, routine child care and other personal care services and related household duties. All but a small percentage of household workers are female; hence, it has been convenient to limit our analysis to women household workers or "maids". Babysitters who do not perform other household duties have also been excluded from this analysis because of the distinctive labor supply source for this activity (predominantly white teenage youth) and because of its typically casual nature.[1]

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[1] The interpretations of these more detailed studies presented in the body of this chapter do not necessarily reflect the views of the authors of these separate reports.

By most criteria, household maids fall at or near the bottom of the occupational hierarchy:

- The median cash hourly earnings of private household workers, except babysitters, were reported at $1.34 in May 1971. This contrasted with a then prevailing minimum wage of $1.60 per hour under the Fair Labor Standards Act. Even after allowance for the value of fringe benefits, such as food and carfare, these were probably lower than for any other sizeable occupational group in the labor force.[2]

- Formal education or specialized training requirements for entry into routine domestic jobs are either non-existent or very low. Most of the skills entailed in household work are normally acquired by girls and young women, at least in rudimentary fashion, in their own households.

- Domestic work in recent years has been predominantly staffed by a part-time and intermittent labor force. In May 1971, over one-half worked less than 15 hours per week and nearly four-fifths less than 35 hours per week.[3] Among the small proportion of "live-in" maids, however, nearly one-half reported work weeks of 45 hours or longer -- a typical pattern which

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1/ Peter Mattila in his study defines "household maids" or domestics to include all private household workers, as reported in the decennial Censuses, other than babysitters, where the latter are separately identified. Also excluded are private household employees engaged as gardeners, chauffeurs or related outside activities. Our classification, for purposes of occupational status ranking, also excludes housekeepers from the category of private household workers not elsewhere classified.

2/ Private Household Workers, U.S. Department of Labor, Employment Standards Administration, 1974, p. A-11.

3/ Ibid, p. A-27.

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was probably much more pronounced in earlier decades, when "live-in" workers represented a much larger proportion of the domestic work force.

By the nature of their employment, domestic workers are subjected to personalized and, often, erratic supervision, particularly with the almost complete absence of any form of governmental safeguards or union organization. Until recently, they were afforded few, if any, of the protections available to most other workers under state and federal laws. They were excluded from coverage under minimum wage, unemployment insurance and workmen's compensation legislation with very limited exceptions.[1]

Domestic service thus, in almost all respects, provides a prototype of the kind of employment which hasbeen characterized as part of the "secondary" labor market. All of these factors have also contributed to the low status ranking of household workers, whether based on "social-economic status," "prestige" or on our own criteria, as described in Chapter I of this study.[2]

In the latter context, the low social status of domestic service in the United States and its general identification as a "menial" occupation, has also in part been directly attributable to the composition of its work force. In 1910, when immigration was at its peak, more than a fifth of the female servants were foreign born, with a particularly high concentration of women of Irish and Scandinavian origin. Over-one third were Negro, and over two-fifths of all Negro women workers were in this occupation.[3] With

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[1] A major breakthrough in this respect was the extension of minimum wage and overtime pay coverage to most domestic workers, other than babysitters employed on a casual basis, under the 1974 Amendments to the Fair Labor Standards Act.

[2] Table 3.

[3] Table 6.

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the cessation of large scale immigration after World War I and the beginning of the mass movement of the black population from Southern farms to Northern cities, black women became the most important single labor supply source for domestic labor, particularly in the larger cities where a large proportion of these jobs was concentrated. By 1930, nearly one-half of all female domestics were Negro while the foreign born proportion had declined to less than 15%. The concentration of Negro women in the domestic service labor force became even more pronounced after World War II. By 1970, fully two-thirds of all female household workers (excluding babysitters) were non-white.

The household maid occupation has certain additional characteristics which make it particularly interesting from the standpoint of analysis of occupational supply and demand behavior. First, because it is highly decentralized and because it has neither been organized nor subject to governmental wage regulation it is -- as Peter Mattila has noted -- "probably as competitive as any other labor market in existence." Secondly, it is a one-industry occupation, whose inputs consist entirely of labor services to private households; hence, the theory of consumer demand should be directly applicable to the analysis of demand for domestic worker services. Finally, as noted by George Stigler in his pioneering study of this occupation, domestic service is an occupation, which -- based mainly on apocryphal rather than empirical data -- appears to have been afflicted by chronic problems of labor shortage, attributable -- at least in part -- to the low social status of the occupation.[1]

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[1] George T. Stigler, Domestic Servants in the United States, 1900-1940, National Bureau of Economic Research, Occasional Paper 24. April 1946, p. 1.

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Factors Affecting Employment Trends

Employment of household maids has declined sharply, although unevenly, in recent decades. Based on decennial Census data, the number of private household workers, excluding babysitters, rose from 1,579,000 in 1900 to 2,413,000 in 1940, but then declined to 981,000 in 1970.[1] The number of domestics per 100 household fell from 9.9 per 100 households in 1900 to 6.9 in 1940 and to 1.5 in 1970. These comparisons, moreover, understate the true employment decline in this occupation in terms of full-time equivalent manyears due to the sharp reduction in annual hours of work per domestic worker. Early in the century, a considerable proportion of domestics were probably "live-in" maids, with the very long hours of work characteristic of this occupation. As noted above, "live-in" maids now account for only a small proportion of total female household workers. Because of extensive part-time work among the more typical "day" workers, the median weekly hours per domestic are now very low, i.e., less than 15 hours per week in 1972.

Closer inspection of these trends suggests that both demand and supply factors have contributed to this long-term decline. From the demand standpoint, there has been a progressive growth in a wide range of substitutes for domestic servants, ranging from labor-saving household appliances and equipment of all types and increased availability of commercial personal services, e.g., laundries and "quick-food" restaurants, to the extensive growth in pre-processed foods. As noted by Mattila, the prices of these substitutes for domestic servants increased much less between 1939 and 1970 than did domestic wage rates. For example, as compared to a 615% increase in domestic wage rates, the price of commercial laundry services rose by 259% and those of household appliances by only 20%.[1] Another contributing factor tending to reduce labor requirements for domestics was the long-term decline in family size associated with the secular decline in birth rates.

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[1] Peter Mattila, "The Labor Supply of Household Maids," *op. cit.*, Table 1.

However, not all demand-related factors would necessarily have been expected to reduce requirements for domestic service. Analysis of family expenditures data suggests that expenditures for domestic service tend to be moderately elastic in relation to size of family income. Thus among urban families of four persons, the average percentage of income spent for domestic service in 1961 rose from less than one percent among families with income under $10,000 to 2.8% for families with incomes of $15,000 and over.[2] Other factors being equal, one would thus have expected an increase in employment of domestics to accompany the rising secular trend in family incomes -- particularly in view of the increased participation of married women in gainful employment. Yet, the number of domestics in the labor force fell most sharply during the war-time decades of 1910-20, 1940-50 and 1960-70 -- periods characterized by sharp rises in wages, in employment and family income levels as well as by pronounced increases in participation of women in the labor force. In contrast, the number of domestics rose -- both absolutely and

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1/ J. Peter Mattila, "The Effect of Extending Minimum Wages to Cover Household Maids," Journal of Human Resources, Summer 1973, p. 369.

2/ U.S. Bureau of Labor Statistics, Consumer Expenditures and Income, Urban United States, 1961, Survey of Consumer Expenditures, 1960-1, Suppl. 3-Part C to BLS Report 237-38, July 1964, Table 29F.

George Stigler estimated the income elasticity of demand for servants as 2.0, based on 1935-36 consumer expenditures data.

per household -- in the 1920-30 and the 1930-40 decades.[1/] The trend during the 1930's, particularly, appears to be clearly associated with the sharp decline of alternative job opportunities for women during the Great Depression and the pressures upon them to contribute to family income in the face of pervasive unemployment and underemployment among male family members.

Collateral data also support an interpretation that the declining trend in household maid employment was induced, at least in part, by labor supply constraints. Based on BLS data, wage rates of domestics rose significantly more rapidly than did average hourly earnings of manufacturing production workers during periods such as 1939-48 and 1964-70, which were also marked by sharp reductions in household worker employment. Moreover, between 1960 and 1970, unemployment rates for all private household workers declined from 5.3% to 4.2%, whereas the unemployment rate for all women, 16 years and over, actually increased slightly, from 5.3% to 5.4%, between these two years.[2/] If employment reductions had been solely due to curtailed demand, a decline in relative wages and an increase in relative unemployment for this occupation would have been expected.

The limited evidence from time series data is thus consistent with a hypothesis that the demand for domestics is highly elastic in relation to the relative wages of domestics and that, given the competitive market for domestics, both wage rates and employment of domestics have been particularly sensitive to supply conditions. In turn, the supply of domestics -- given

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[1/] The trends for 1910-20 and for 1920-30 have been affected, however, by a probable undercount of domestics in the 1920 Census. See Stigler, *op. cit.*, Appendix A.

[2/] *Manpower Report of the President, 1974*, Table A-16 and A-17.

the low wages and the low status of the occupation -- has been significantly influenced both by general labor market conditions and by changes in the availability of "low caste" labor supply groups, such as black women and recent immigrants, for this type of employment.

Cross-Sectional Studies

The above inferences had already been drawn by Stigler, based on a penetrating analysis of the limited data base available to him in the 1940's. More recently, Mattila has attempted to extend this analysis by construction of cross-sectional econometric models, using the more extensive data resources of the 1960 and 1970 Censuses, as well as collateral data. An initial study, designed to estimate the employment effects of extending minimum wage average to household workers was based mainly on the following models.[1/]

Demand-- The number of employed household maids per household was assumed to be a function of: (1) real wages of domestics, (2) family income, (3) the price of subsitutes for maid services (e.g., laundry services, food away from home), and (4) the female labor force participation rate, on the assumption that higher employment rates for women increased the demand for domestic services.

Supply-- Household maids in the experienced civilian labor force per household were used as the dependent variable for the supply model. This initial model assumed that supply of household maids was a function of: (1) wages of domestics, (2) the percentage of Negro

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[1/] Mattila, Journal of Human Resources, op. cit.

women in the labor force, and (3) alternative income sources of domestics, as estimated by income of non-white males and income of non-white females.

The data base for this analysis consisted of forty SMSA's for which BLS consumer price data on hourly wage rates of domestics and prices of other personal services were available, with the other variables derived from the 1960 Census of Population.

Mattila's major finding in this initial study was that demand for maids was quite elastic with respect to domestics' wages, with elasticities ranging from -1.2 to -3.0, depending upon model specifications. Based upon estimates of existing hourly earnings distributions of maids, Mattila concluded that even under a conservative (-1.3) elasticity assumption, a minimum wage ranging from $1.20-$2.00 per hour could have very substantial disemployment effects, of from -12% to -58%, whether in the form of reduced employment or reduced weekly hours.

Other findings by Mattila, based on this initial analysis, were that: (1) income elasticity of demand, based on area cross-sectional data, was not as consistently evident as in the family expenditures data and -- in any event -- appeared to be outweighed by the greater inverse demand elasticity to domestic wages; (2) supply of domestics by SMSA was strongly and positively associated with the percentage of black women in the labor force in each SMSA and was negatively related to earnings of non-white men in these areas; and (3) supply of domestics did not appear to be significantly affected by inter-city variations in real domestics' wage rates, holding other factors constant.

For purposes of the present report, Mattila has updated and revised his econometric analyses on the basis of 1970 Census data, has incorporated a number of additional variables in his basic models and has explored several other labor supply relevant models. His detailed methodology is described in the Appendix. Following are some additional insights derived from this new study:

1. Whereas the revised supply model -- in common with the earlier model -- did not find any significant relationship between supply of household maids and real wage rates for domestics (deflated by each area's CPI index), the revised model did find a highly significant relationship between supply of maids and the relative wage of domestics as measured either by the ratio of domestics' wages to those of female janitors in business and industry in each area, or by the ratio of 1969 median annual earnings of full-year domestics to the standardized occupational earnings measure for each area. (See Chapter IV)

2. The supply of domestics was also found to be significantly and inversely correlated with the level of AFDC payments by SMSA, although the elasticities were relatively low, ranging between -0.2 and -0.7 under alternative models.

3. The influence of the proportion of Negro women in the labor force upon the supply of domestics was refined in this revised analysis by defining this variable as the percentage of women in the labor force who are Negroes with less than 12 years of education. This factor again proved to be highly significant and positively associated with supply in almost all models, with

elasticities about twice as large in Southern cities than in non-Southern cities -- probably indicative of the somewhat more restricted range of job opportunities for poorly educated black women in Southern cities than in the North.

4. A separate analysis was made of the factors affecting the supply of black women for domestic work using (a) the number of Negro women domestics per household, and (b) their relative concentration in domestic work, as the dependent variables. One of the findings based on the former formulation was that, in areas where the education of black women more closely approached that of white women workers, the proportion of Negro women working as domestics was significantly lower.

5. The results of the revised demand model were generally consistent with the earlier analysis, although with higher elasticities, in relation to both domestics' wages (negative) and to family income (positive) than for 1960.

6. Finally, Mattila attempted to analyze factors affecting inter-area differences in relative earnings of domestics, as measured by the ratio of annual earnings of domestics employed 50-52 weeks to those of all women workers employed year-round. The findings are tentative because of data limitations. They did, however, suggest that areas with higher levels of AFDC payments and with higher educational levels among Negro women also had significantly higher relative earnings levels for domestics.

In summary, Mattila's findings are most definitive in demonstrating the sensitivity of supply -- and hence of employment -- of domestic workers to alternative income and job opportunities to black women, who have been the primary labor supply source for this occupation. These alternatives have been measured in different ways in the various econometric models, but almost all formulations have confirmed the strength of this relationship.

Employment and Earnings Outlook

Based on the above analyses, it is reasonable to assume a continued declining trend in employment of domestics, in combination with some moderate increase in their relative earnings under conditions of full or near full-employment. Among important specific contributing supply factors will be: (1) the continued decline in the number and proportion of poorly educated black women in the labor force, who have been a prime labor supply source for this work in recent decades; (2) the probable impact of the new federal minimum wage for domestics, particularly in the South, assuming even a modest degree of enforcement, and (3) the probability that existing geographical differentials in AFDC payments will also narrow, thus again tending to reduce the currently disproportionate utilization of domestics in the South.

The degree to which this reduction will be dependent upon availability of alternative job opportunities is also suggested by the sharp contrast in occupational distribution of employed non-white women, aged 18-24 years and not enrolled in school, by size of area. The National Longitudinal Survey, in its initial 1968 survey of this group, found that less than 0.5% of young non-white women residing in large SMSA's (with labor force of 500,000 or more) were employed as domestics, as contrasted with 14% of those in areas with a labor force of 100-499,000 and to 22% of those in areas with less than 100,000 workers.[1] This virtual disappearance of younger black women from the labor force of domestics in large cities during the 1960's stands in sharp contrast to the experience of preceding generations of black women, and is undoubtedly associated both with the rapid rise in their educational attainment there and with their rapid influx into clerical and other white collar jobs in such cities. In view of the persistence of very high unemployment rates among younger black women in large metropolitan areas -- in contrast with relatively low rates for domestic workers -- it must also be attributed to a widespread rejection of domestic service by such women because of its "menial" status, low wages and long commuting time, as well as because of availability of alternative income sources, including AFDC.

One consequence of these trends, it has been suggested, may be to provide greater impetus to measures to upgrade both the productivity of domestic service and its status. During the 1960's, considerable attention was given by the Department of Labor to these objectives. The upgrading of domestic service was selected as a target for action by the President's Committee on the Status of Women. Funding was provided for a National Committee on Household Employment and for eight pilot projects designed to train domestic workers and to help them obtain better-paying and more "professional" jobs. The training provided ranged from four to 16 weeks. Those completing the training were in turn offered placement assistance. These projects met with limited success; loss rates during training were high, averaging more than one-third. Moreover, many of the graduates did not choose to enter, or remain in domestic jobs. Nevertheless, over one-half of the graduates were still working at the termination of the projects and a majority were earning rates well above the prevailing average for domestic maids.

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[1] Years for Decision, Volume 1, Manpower Research Monograph No. 24, pp. 129-30.

These small-scale projects and similar promotional efforts to upgrade domestic worker employment have, however, made no measurable impact to date upon prevailing practices or upon the overall status of this occupation.1/ In fact, the experience of these projects has served to illustrate the many inherent difficulties in such a process, stemming both from the characteristics of the labor supply and of the typical employing household. Unless wages and working conditions, as well as "productivity" of domestics can be substantially upgraded, domestic service is likely to continue as a "job of last resort," attracting mainly women with few vocational skills who are interested in part-time or intermittent work rather than in a full-time occupational career.

One source for augmenting the dwindling domestic labor supply for this occupation has consisted of those recent immigrants, mainly from nearby countries in Latin America and the West Indies, who have entered this country either legally or illegally and who possess limited education or

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1/ National Pilot Program of Household Employment: Final Report of the Experimental and Demonstration Projects. National Committee on Household Employment, Washington, D.C., 1971, pp. 31-32.

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vocational skills. Despite the generally higher overall occupational and educational status of recent legal immigrants, nearly 9% of all such immigrants in the decade 1961-70 who reported an occupation identified themselves as household workers.[1] Moreover, our analysis of the occupational distribution of foreign born workers who reported their origin as in Latin American countries indicated a greater-than-average concentration in household jobs. Thus, in 1970, this group accounted for 2.5% of private household workers, although they represented only 1.2% of the total experienced civilian labor force.[2] However, as documented by North and Weissert in their follow-up study of recent immigrants, it is clear that a large proportion of immigrant women who engaged in household work in their country of origin do not enter this employment here, or -- if they do -- move on to better paying jobs as soon as they acquire the needed language or educational qualifications.[3] This labor supply source has been significant in some areas with high concentrations of such immigrants, e.g., in Northern seaboard cities such as New York and in border communities of the Southwestern states. In the absence of a general lowering of immigration barriers or large scale inflows of illegal aliens, it is unlikely, however, that it will substahtially expand the overall national supply of domestic workers.

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[1] Table 45.

[2] Table 46.

[3] David S. North and William G. Weissert, Immigrants and the American Labor Market, Trans Century Corporation, April 1973. (Report prepared for the Manpower Administration, U.S. Department of Labor.)

B. Apparel Industry Operatives

Occupational Status

The apparel manufacturing industry was selected for detailed analysis because -- in most respects -- it has been the prototype of low-wage industrial employment in this country. The term "sweatshop", in fact, had its origins in the descriptions of working conditions prevailing in the small tenement shops which characterized the new factory-clothing industry in the decades immediately preceding World War I.[1/]

Unionization, in combination with federal and state labor laws, has resulted in great improvements in working conditions and in amelioration of many of the other adverse features associated with the origins of the industry, although there are still many sub-marginal enterprises, particularly in the non-unionized sector of the industry. Nevertheless, apparel industry operatives, although at a higher status level than most low-skilled service or laborer jobs, still rank at or near the bottom of the job hierarchy among the major semi-skilled operative occupations, as illustrated by the following comparisons:

- Earnings -- The apparel industry ranks lowest in wage levels among the major (2-digit S.I.C.) manufacturing industries. Average hourly earnings of apparel industry production workers were $2.78 in 1973 as compared to an average of $4.07 in all manufacturing industries.[2/]

- Training and Education -- Little or no formal training is required for entry into most apparel operative jobs. In a 1962 survey, only 8.7% of all

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1/ Louis Levine, The Women's Garment Workers, (New York: B.W. Huebisch, Inc., 1927), Chapter IV.

2/ U.S. Bureau of Labor Statistics, Employment and Earnings, January 1974.

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apparel operatives reported that they had received any formal training for their jobs and only 4.1% considered formal training as the most helpful way of learning this work.[1] Educational levels of apparel industry operatives are correspondingly low. In 1970, the median years of school completed for female apparel operatives was 9.3 years, as compared with an average of 9.8 years for women operatives in all manufacturing industries.[2]

- Promotional Opportunity -- Employment as an apparel operative or sewing machine operator is typically a "dead-end" job, with little or no opportunity for occupational progression. As noted by Brecher, "positions as machine operators are entry jobs which lead to practically no promotional positions."[3]

- Turnover -- As a result of these conditions, and of the seasonal and/or irregular production patterns characteristic of many branches of the industry, turnover rates in apparel manufacturing have tended to be among the highest of any major manufacturing industry.[4]

Economic Characteristics

These and other adverse employment conditions have their roots in the economic structure of the industry. The industry, as a whole, is characterized by a basically simple and relatively static technology, centered around the sewing machine, with use of additional equipment for such functions as cutting and pressing. Capital requirements are low as illustrated by the fact that the value of gross plant and equipment per apparel workers was only about $3000 in 1973, or about one-ninth of the corresponding ratio for all manufacturing. The low capital requirements and the absence of major economies of scale have facilitated ease of entry into the industry and, at the same time, have accounted for the small average firm size, which was less than 60 employees in 1973.[1]

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[1] Formal Occupational Training of Adult Workers, U.S. Department of Labor, Manpower Automation Research, Monograph No. 2, December 1964, Table 11.

[2] 1970 Census of Population, Occupation by Industry, PC(2)-7C, Table 2.

[3] Charles Brecher, Upgrading Blue Collar and Service Workers, (Baltimore: Johns Hopkins Press, 1972), p. 19.

[4] U.S. Bureau of Labor Statistics, Employment and Earnings, op. cit.

This composite picture does conceal some important variations among major sectors of the apparel manufacturing industry. The fashion-oriented women's apparel industries -- dresses, blouses, coats and suits and furs-- constitute one distinct sector. The many thousands of styles generated in these industries each year have imposed severe limits on the rationalization of production methods. Production runs are short and materials, such as fabrics, buttons and trims, are highly diversified. With production schedules geared to rapid filling of retail orders for "perishable" merchandise, employment tends to be highly uneven, particularly during periods of slack general business activity. The more expensive price lines, which require more styling and handiwork, are still generally performed by skilled operators who perform the sewing operations for a whole garment. The less expensive volume price lines follow a "section system" of manufacture, in which each operator performs a high specialized sewing task, often with specialized sewing machines or attachments. Little skill or training is required for the latter operations.

A common organizational form in these branches of the industry is the contractor system under which the principal entrepreneur -- the "jobber" -- designs and markets the product and procures the materials, but contracts out the actual production of the garments. This arrangement has the obvious advantage to the jobber of imposing upon the contractor all the costs and managerial problems associated with irregularity of production, as well as the responsibility for recruitment, supervision and compensation of the production work force. In contrast, the conventional manufacturer, or "inside" shop, performs all of the above operations in a single organizational entity.

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[1] U.S. Industrial Outlook for 1974, U.S. Department of Commerce, p. 206.

These fashion-oriented branches of the industry have also had in common, a stronger centrifugal orientation, as evidenced by the fact that--despite accelerated outmigration--over one-half of total national employment in the women's outerwear industries was still concentrated in the three Middle-Atlantic states of New York, New Jersey and Pennsylvania in the early 1970's, and predominantly in the New York City metropolitan area. This has been explained by such factors as ready availability of skilled labor and of a large variety of diversified materials, of large concentrations of retail store buyers in a single location and by the need for speedy deliveries of seasonal style merchandise.[1]

At the opposite extreme have been those branches of the industry, such as men's shirts and work clothing, which are much less influenced by style factors and -- hence -- have been able to schedule long production runs. These industries are characterized by larger firm sizes, as illustrated by an average of about 190 employees per establishment in the work clothing industry and about 170 in men's shirt and nightwear factories.[2] The breakdown of work processes and the use of highly specialized sewing equipment is considerably more advanced. With low skill requirements and a limited need to be located near major market centers, labor supply has been the major factor in their locational orientation. This is illustrated by their relatively high geographical concentration in the Southeastern states and -- typically -- in smaller cities or rural communities where they have been able to tap large reserves of low wage female labor.

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[1] For a discussion of the role of these factors, see Raymond Vernon, New York Metropolitan Region Study, 1959, pp. 64-65.

[2] U.S. Industrial Outlook, *op. cit.*, pp. 210, 211.

Employment and Labor Supply Trends

The early origins and growth of the factory clothing industry are inextricably bound with the history of immigration into the United States, and particularly of the successive waves of Jewish immigration from central and eastern Europe. It was the German-Jewish middle class immigrants who were the early entrepreneurs in the emerging ready-to-wear women's and men's clothing industries in the latter decades of the 19th century, when these industries were initially localized in such cities as New York, Philadelphia, Boston, Chicago and Rochester. In turn, it was the poor Jewish immigrants from the ghettoes of Poland and Russia -- many of whom had been employed as tailors or seamstresses in their countries of origin -- who provided the initial supplies of cheap factory labor, both skilled and unskilled, as these industries expanded during the decades immediately preceding World War I.

Summary Census statistics on the distribution of apparel industry operatives as of 1910 provide some indication of its reliance upon immigrant labor. Of a total of 436,000 workers reported as sewing machine operators or in other apparel operative occupations, 203,000 or nearly 47%, were foreign born, and an additional 113,000 or 26%, were native born of immigrant parents.[1/]

1/ Alba Edwards, Comparative Occupation Statistics, op. cit., Table 14, 15.

From other evidence, it is clear moreover that the immigrant concentration was much higher in the women's outerwear and men's coat and suit industries, as contrasted to such decentralized branches as work clothing and other cotton garments. In contrast, employment of Negroes in apparel factories was negligible during this period: less than 2% of all apparel industry employees were Negroes in 1910 and these were probably mainly utilized as laborers or in unskilled service type jobs.[1]

Another aspect of the early labor supply for the apparel industry was the relatively large proportion of men initially employed in this low wage field. In 1910, about 55% of all apparel industry workers were men. Collateral Census data -- limited to apparel industry operatives -- indicates that about two-thirds of these men apparel workers were foreign born, whereas over 60% of women apparel industry operatives were native born.[2] The male apparel industry workers were concentrated in the more style-oriented sectors of the industry, localized in New York and other immigration centers, whereas the less style oriented branches of the industry were much more decentralized and hence utilized a much larger proportion of native born women workers. In succeeding decades, as the proportion of foreign born workers declined, apparel operatives have become a predominantly female occupation. In 1970, 89% of all apparel industry operatives were women, mainly engaged in sewing machine operations (Table 62).

Unlike many other lower level occupations, the proportion of Negroes employed in apparel manufacturing was relatively low until recent decades. It rose significantly, however, from 7.5% to 10.2% between 1960 and 1970,

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[1] Elaine B. Wrong, The Negro in the Apparel Industry, The Racial Policies of American Industry, Report No. 31, Industrial Research Unit: The Wharton School, University of Pennsylvania, 1974, pp. 29-30.

[2] Alba Edwards, Comparative Occupation Statistics, 1870-1940, Tables 14 and 15.

Table 62

Apparel Industry Employment Trends, 1910-1970[1/]

(Based on Decennial Censuses of Population)

	Total	Male	Female	Percent Female	Negroes as % of Total
	Number (000)				
Total Apparel Industry Employees:					
1940	781	265	515	65.9	2.5
1950	1065	311	754	79.8	7.1
1960	1159	294	865	74.6	7.5
1970	1219	273	946	77.6	10.2
Apparel Industry Operatives:					
1960	893	139	754	84.4	N.A.
1970	790	99	808	89.1	11.5

[1/] Sources: Data for total employees compiled by Elaine G. Wrong, The Negro in the Apparel Industry, Tables 9, 17, from decennial Censuses. Data for apparel industry operatives from 1960 Census of Population, Occupation by Industry PC(2)7C, Table 2 and 1970 Census of Population, PC(2)7B, Table 1.

NOTE: Census data on employed apparel industry operatives of Spanish origin, available only for 1970, indicate that a total of 100,000 workers of Spanish origin were employed in this occupation, corresponding to 11.0% of total apparel industry operatives.

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according to Census data. One factor contributing to the relatively limited utilization of Negroes in this industry has been a continued reliance on other disadvantaged minority groups, notably those of Spanish origin, in those areas where these groups are concentrated. In 1970, Spanish origin workers accounted for 11.0% of the apparel operative work force -- a much higher proportion than their representation in the employed work force as a whole.

Until the past decade, the apparel manufacturing industry had experienced a secular growth in employment. This was stimulated -- initially -- by the shift from home sewing or custom work by seamstresses or tailors to factory manufacture of ready-to-wear products. Subsequently, it was maintained by growth in population and real per capita income. Between 1910 and 1940, the number of gainful workers in the apparel industry approximately doubled, rising from 370,000 to 707,000, according to estimates by Alba Edwards from decennial Census statistics.[1] A further sharp expansion of apparel industry employment was recorded in the following two and a half decades, when the total number of production workers in apparel manufacturing rose from 819,000 in 1940 to a peak of 1,246,000 in 1966, according to BLS establishment-based statistics.[2] However, between 1966 and 1973 production worker employment in the industry declined by about 83,000, to 1,163,000 with reductions distributed among almost all industry branches, other than men's and boys' furnishings.

The Role of Import Competition

This employment reduction, in the face of a continued upward trend in apparel purchases by American consumers has been attributed to the sharp increase of imports of apparel during the past decade, primarily from low-wage countries such as Taiwan, South Korea, Hong Kong, Japan and Mexico. Imports of certain low priced apparel items had created severe competitive problems for some branches of the industry for a number of decades. For example, the importation of scarves from Japan beginning in the mid-1950's had the effect of virtually wiping out domestic production of this item.[1] Thereafter, other items of apparel began to be imported at an increasing rate. The precise degree of import penetration during this period is difficult to estimate because of the absence of a common pricing or valuation base for imports in relation to domestic shipments. However, estimates by the I.L.G.W.U. Research Department, based upon a conversion of apparel imports to domestic price equivalents, provide a reasonable approximation. (Table 63.) They indicate a gradual increase in the volume of imports as a percentage of domestic consumption, from less than 4% in 1956 to 12% in 1975 and to nearly 25% in 1972. In an initial effort to check the growth of these imports, a multinational arrangement was concluded under GATT (General Agreement on Tariffs and Trade) auspices which established quota limits on exports to the United States of cotton textiles, cotton apparel and other fabricated cotton products. However, these controls did not extend to wool or man-made fibre textiles and apparel. It was in the latter categories that imports mushroomed in the following decade. Thus, the I.L.G.W.U. has estimated the following percentage increases in apparel imports between 1961 and 1972, based on square yards of fabric used in their manufacture.

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[1] Alba Edwards, op. cit., Table 3.

[2] BLS, Employment and Earnings, 1909-70, Bulletin 1312-7 and annual supplements, 1971-74.

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[1] Report of the General Executive Board to the 35th Convention, International Ladies Garment Workers' Union, May 31, 1974, p. 5.

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Table 63

Imports, Domestic Production and Exports of Apparel (knit and woven), United States

Valued in United States Prices
(in millions of 1957-59 dollars)

Year	Imports	Domestic Production	Exports	Imports as Percent of Domestic Production	Imports as Percent of Domestic Consumption
1956	$ 395.7	$10,055.5	$ 68.0	3.9%	3.8%
1957	435.4	10,214.1	71.1	4.3	4.1
1958	547.2	9,922.9	72.3	5.5	5.3
1959	869.8	10,557.5	75.9	8.2	7.7
1960	920.8	10,693.8	86.7	8.6	8.0
1961	744.7	10,891.5	83.3	6.8	6.4
1962	1,175.4	11.498.6	70.7	10.2	9.3
1963	1,230.4	11,635.4	74.7	10.6	9.6
1964	1,450.8	12,172.9	83.3	11.9	10.7
1975	1,741.9	12,877.0	96.3	13.5	12.0
1966	1,868.2	13,122.0	105.9	14.2	12.6
1967	2,146.8	13,480.2	107.4	15.8	13.8
1968	2,499.2	13,744.4	115.4	18.1	15.5
1969	3,098.8	13,721.0	140.1	22.6	18.6
1970	3,268.6	13,126.8	127.9	24.9	19.7
1971	3,819.8	13,533.0	133.7	28.2	22.2
1972	4,681.9P	14,344.3P	158.3P	32.6P	24.8P

Source: Unpublished Estimates, I.L.G.W.U. Research Department

	Percentage Increase in Apparel Imports 1961-72
All Apparel	605%
Cotton Apparel	110%
Wool Apparel	168
Man-made Fibre Apparel	5,553

The degree of import penetration has been generally greater for most categories of women's and girls' apparel than for men's clothing and it has been greater for apparel items relying mainly on man-made fabrics, such as sweaters, blouses and raincoats, than for those relying on cotton, such as men's work clothing and underwear. Apparel items requiring higher-than-average degrees of skill and styling such as women's dresses and men's suits, on the other hand, have experienced smaller inroads from foreign competition, to date.

The causes of this massive influx of imports clearly stem from the much lower wage rates in the major apparel exporting countries, as compared to those in the United States. The extent of these differentials is suggested by the following BLS comparisons of hourly compensation rates for textile production workers in selected competing countries.

Estimated Compensation per Hour Worked, 1972 ($ U.S.)	
United States	3.22
Italy	2.02
Japan	1.25
Mexico	.92
Hong Kong	.44*
Korea	.25-.26
Taiwan	.20

*Based on published average hourly earnings; may exclude some fringe benefits.

Source: Office of Productivity and Technology, Bureau of Labor Statistics, U.S. Department of Labor, June 1974.

Other contributing factors were the general shift from reliance on natural fabrics to man-made fabrics, the rapid post-World War II development of the needed capital and entrepreneurial skills in the low wage exporting countries and major recent strides in worldwide communications and air transport, which have further reduced the locational advantages of domestic apparel producers. Moreover, in view of the prevailing labor-intensive technology in domestic apparel manufacturing, it is not apparent that the domestic industry enjoys any marked labor productivity advantage as compared to its major foreign competitors.[1]

In an effort to check the growing impact of foreign competition upon jobs of domestic apparel workers, the leading apparel unions initiated a major campaign, together with domestic apparel manufacturing interests, to limit the imports of apparel made from man-made fibres and wool, as well as from cotton. In 1971, these pressures resulted in negotiation of a series of bilateral agreements by the United States with four major exporting countries -- Japan, South Korea, Republic of China (Taiwan) and Hong Kong. These agreements, in combination with the impacts of dollar devaluation, resulted in moderate reductions in unit volume of apparel imports in the following two years. Subsequently, a general agreement was negotiated under GATT in 1973 under which import restraints for wool and man-made fibres and apparel, allowing for growth rates of six percent per year or less, could be established between importing and exporting countries under bilateral agreements.

At the time of preparation of this report, it is still not practicable to assess the longer-range implications of these agreements. The present agreements are of limited duration and are based on physical units rather than value. These considerations suggest that there will be continued heavy import competition for domestic apparel manufacturers in the years ahead, with possible shifts of emphasis on the part of apparel exporting countries from low-unit cost to higher-unit cost items, and with possible emergence of new (non-quota limited) sources of cheap-labor competition for the domestic industry.

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[1] Interview with Mr. Carl Pressland, economic consultant to American Apparel Manufacturers Association.

Geographical Shifts in Apparel Employment

The significant recent movement of apparel production from domestic to foreign sources, described above, has been paralleled by a major geographical redistribution of the apparel industry within the United States. As noted earlier in this section, the availability of a large pool of cheap, easily-trained immigrant labor had been a prime factor in the initial localization of major segments of the apparel industry in New York City and in other large Eastern seaboard cities. This locational advantage was reduced, however, in the early 1920's as a result of two concurrent factors: (1) the virtual stoppage of immigrant inflows during World War I and the sharp reduction in immigration under the immigration laws enacted in the early 1920's, and (2) the growth of apparel unionism in the established centers of the industry. Victor Fuchs, in his study of manufacturing location trends between 1929 and 1954, has noted that two patterns of geographical redistribution were evident in the apparel industry during this period. "Those apparel industries that are heavily dependent upon the New York City garment center either for part of the production process or for styling and distribution tended to have their largest comparative gains in the states surrounding New York or in the South Atlantic states (e.g., women's and children's clothing). Those industries that were not as dependent on New York tended to grow rapidly in the East South Central (e.g., men's and boys' clothing)." On the other hand, those industry branches which were very dependent on style, skilled labor and external economies (e.g., furs) showed no decrease in concentration in New York. Based on a multi-variate analysis of ten locational factors, Fuchs concluded that "as in the case of textiles, the desire to avoid unions and to utilize the less expensive labor of the South appear to have been the major influences determining the direction of redistribution."[1]

Prior to the 1950's, these shifts in geographical distribution were relatively gradual and coincided with continued strong secular growth in overall apparel manufacturing employment. Thus, between 1940 and 1950, New York State's share of total apparel employment dropped from 36.2% to 33.3%; but the number of apparel workers employed in New York continued to increase, from 283,000 to 354,000, according to decennial Census data. Beginning in the 1950's, however, the overall rate of apparel industry employment growth slowed down appreciably and -- at the same time -- the rate of relocation accelerated rapidly. As a result, employment in the New York apparel industry dropped severely both in absolute numbers and in its share of the national total. Between 1950 and 1970, apparel industry employment in the New York SMSA declined from 311,000 to 173,000, while its share of total apparel employment fell by more than one-half, from 29.2% in 1950 to 14.2% in 1970. (Table 64.) Similar, although less severe, reductions occurred

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[1] Victor P. Fuchs, *Changes in the Location of Manufacturing in the United States Since 1929*, (New Haven and London: Yale University Press, 1962) p. 252.

Table 64

Apparel Industry Employment by Region: 1950, 1960 and 1970

Region	1950		1960		1970	
	No. (000)	Percent	No. (000)	Percent	No. (000)	Percent
New York SMSA	311	29.2	255	22.0	173	14.2
Middle Atlantic, excluding New York SMSA	279	26.2	271	23.4	258	21.2
New England	78	7.3	84	7.2	68	5.6
South	180	16.9	335	28.9	501	41.1
Midwest	161	15.1	139	12.0	130	10.7
Far West	53	5.0	64	5.5	73	6.0
United States*	1065	100.0	1159	100.0	1219	100.0

Source: U.S. Census of Population, 1950, 1960, 1970. Adapted from Elaine Wrong, op. cit., Tables 22, 25.

* Regional totals do not add to United States totals because some states were excluded from regions.

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in New England and in the Midwest region. The Middle Atlantic region, exclusive of the New York SMSA, experienced a much more limited reduction, since continued movement of certain branches of the industry to Pennsylvania (typically to depressed coal mining communities) tended to offset sharp employment reductions elsewhere in these states.

In contrast to this declining pattern in the North, the Southern states -- as a group -- experienced a major expansion in apparel industry employment. Between 1950 and 1970, the number of employed apparel workers in the Southern states increased by about 280%, from 180,000 to 501,000, while their share of total apparel employment rose from 16.9% to 41.1%. The growth of the Southern apparel industry appears to have been widespread throughout the Southeastern and Southwestern states, but was particularly rapid in states such as North Carolina, South Carolina, Tennessee, Florida, Alabama and Mississippi. Apparel employment in these six states grew nearly five-fold, from 69,500 in 1950 to 335,400 in 1970. The Southern apparel industry has, moreover, tended to locate mainly in smaller cities and towns, rather than in large metropolitan centers, paralleling the locational pattern of the textile industry in this region. One notable exception has been the Miami SMSA, whose apparel industry employment expanded from 5,300 in 1960 to 15,700 in 1970. This appears to have been a direct consequence of the sharp growth in the Cuban refugee population in Miami during the past decade which -- in common with earlier immigrant groups -- provided an adaptable low-wage labor supply for this industry in Miami, as well as a source of entrepreneurial skills.

A more detailed analysis of differential geographical trends in apparel employment between 1959 and 1971 by industry branch, based on establishment data published in County Business Patterns, is presented in Table 65. These comparisons indicate that, with few exceptions, the Northern states experienced significant losses of apparel jobs in all branches of the industry and that the Southeastern and Southwestern states were the major gainers.

The broad pattern of geographical redistribution during this more recent period continues, however, to resemble that described by Fuchs in his analysis of earlier trends in this industry between 1929 and 1954. Notably, those industries which were least dependent upon the New York garment center because of style factors or related marketing considerations, such as men's and boys' furnishings and work clothing, experienced consistent employment losses in all the major northern production areas and moved, particularly, to Southwestern states such as Texas, although Southern states, generally, experienced sharp employment growth in this branch. Conversely, industry branches which were more style-oriented, such as women's and misses' outerwear, experienced a less-than-average employment loss in the established production centers, with relatively sharper gains in the Southeastern, than the Southwestern states. The continued importance of convenient geographical access to the New York garment center for some components of this industry is illustrated by the fact that Pennsylvania experienced a moderate employment increase of 22.7% in women's outerwear employment between 1959 and 1971 in contrast to declines in most other branches.

The Role of Labor Market Factors

The root causes for the massive geographical redistribution of apparel industry employment, both externally and internally, are by almost all

Table 65

Percent Change in Apparel Industry Employment, 1959-71, by Industry Branch, for Selected Geographical Divisions and States

	Total Apparel (SIC23)	Men's & Boys' Suits, etc. (SIC231)	Men's & Boys' Furnishings (SIC232)	Women's & Misses' Outerwear (SIC233)	Women's & Children's Undergarments (SIC234)	Children's Outerwear (SIC236)
United States	11.4	-6.0	28.1	12.2	-.4	-.9
Selected Divisions:						
Middle Atlantic	-14.7	-15.9	-10.0	- 6.8	-29.8	-29.0
Southeast	75.2	*	43.2	170.1	81.0	126.8
Southwest	95.4	8.9	165.6	75.5	*	-12.6
Selected States:						
New York	-23.5	-26.6	- 7.0	-19.3	-34.2	-33.9
Pennsylvania	- .1	.2	-10.2	22.7	-15.2	-27.1
New Jersey	-12.4	-30.4	- 7.2	- 1.0	-42.9	-18.5
Massachusetts	-22.4	-19.4	-13.2	-19.5	-39.6	-38.3
Illinois	-29.1	-21.1	-36.5	-33.9	-62.9	-68.3
North Carolina	135.5	*	89.2	335.7	53.0	159.0
South Carolina	71.0	*	22.9	85.0	34.7	34.8
Georgia	62.9	100.4	51.8	115.0	79.0	162.4
Tennessee	70.4	47.5	40.8	302.6	118.5	775.2
Texas	86.2	8.9	153.3	72.1	89.4	-21.1
California	24.6	22.0	18.8	26.3	14.7	- .9

Source: U.S. Department of Commerce, County Business Patterns. 1959.

* Comparable data not available for both 1959 and 1971, in these branches.

accounts associated with the geographical differentials in wage rates and in labor costs in this highly competitive, labor intensive industry. The contrast between wage rates in the major apparel exporting countries, competing in the United States market, with those in the United States has already been noted. Within the United States, apparel industry wage differentials between North and South, and between the large metropolitan centers and smaller communities, are also considerable -- although, of course, within a much more modest range of variation. The extent of these differentials is illustrated by the following comparisons, based on recent BLS wage surveys:

· In the women's and misses' dress manufacturing industry, among 12 cities surveyed, average hourly earnings of section-system sewing machine operators in August 1971 ranged from lows of $1.88 in Miami and $2.03 in Dallas to highs of $2.83 in Chicago and $3.22 in New York City.[1/]

· In the men's and boys' suit and coat manufacturing industry, average hourly earnings of sewing machine operators, in April 1973, ranged from a low of $2.64 in the Southeastern states to a high of $3.52 in the Middle Atlantic states.[2/]

· In the trouser manufacturing industry, hourly earnings similarly ranged from $1.84 in North Carolina to $2.55 in the Middle Atlantic region.[3/]

These inter-area differences in earnings do not necessarily correspond to differentials in unit labor costs, because of the likelihood that --

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1/ *Monthly Labor Review*, March 1973. p. 57.

2/ *Monthly Labor Review*, May 1974, p. 71.

3/ *Monthly Labor Review*, March 1972, p. 53.

under the prevailing piece rate system of pay -- workers in the higher wage areas are more experienced and productive than those in low wage areas. Nevertheless, in view of the limited amount of skill involved in most of these machine sewing operations, it may be assumed that unit labor cost differentials are quite substantial and have provided the major impetus for industry relocation. The importance of a labor cost differential of, for example, 20% in the competitive position of different apparel production centers is illustrated by the fact that payroll costs accounted for 54% of total value added in the apparel industry in 1972, while profit to sales margins averaged 2.3%.[1/]

Regional wage differentials alone cannot, however, fully explain the sharp and sustained migration of the apparel industry in the past two decades. Such differentials existed in earlier decades as well. It seems probable that the high rate of out-movement in recent years has been prompted by a number of additional economic and locational factors, including the increased postwar concentration of raw materials sources (particularly the new synthetic textiles plants) in the Southern states, and the heavy competitive pressures upon the domestic apparel industry stemming from increased foreign competition and the rapid extension of our national highway network (thus reducing the need for market proximity).

In addition, there is considerable evidence that labor factors -- other than those directly reflected in wage rate differentials -- may also have

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[1/] U.S. Industrial Outlook for 1974, U.S. Department of Commerce, p. 208.

played an important role. The two major unions in the apparel industry--the I.L.G.W.U. and the A.C.W.A.--were initially organized in the years prior to World War I; they developed considerable strength in the 1920's and, after a period of eclipse during the depression years, emerged as a dominant force in New York and other major Northern and Midwestern apparel manufacturing centers. They have, however, met with limited success in organizing workers in the cities and towns of the South, as well as in some of the "out-of-town" districts in northern states, as illustrated by the fact that only 30.7% of all apparel industry workers were reported to be union members, in a Census survey conducted in March 1971,[1] as contrasted to high degrees of unionization in the established apparel centers. This has not only served to perpetuate regional wage rate differentials, but has given employers in the established centers the further motivation to relocate in order to escape from a whole range of related constraints under collective bargaining agreements. Additional considerations, noted in recent press articles, include rising crime in the New York garment district and related problems of congestion, high rentals and urban blight.[2]

These problems appear to have been compounded in the late 1960's by evidence of considerable labor recruitment difficulties in the metropolitan apparel industry even in the face of declining employment levels. Elaine Wrong in her study of Negro employment in the industry noted recurring employer complaints of scarcity of job applicants in the course of field visits in cities such as New York, Chicago, Philadelphia, Los Angeles

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1/ Selected Earnings and Demographic Characteristics of Union Members, 1970, Report 417, U.S. Department of Labor, Bureau of Labor Statistics, 1972, p. 8.

2/ Cited in Wrong, op. cit., p. 20.

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and San Francisco.[1] Some supporting evidence is provided by BLS job vacancy statistics, compiled for several years beginning in 1969. Job vacancy rates during 1969-73 were consistently higher in apparel manufacturing than in other manufacturing industries. In fact, the "long-term vacancy rate" -- a more sensitive indicator of recruitment difficulties -- was at least twice as high as the corresponding average for all manufacturing industries, despite the fact that apparel manufacturing employment experienced a significant employment decline during this period.

Table 66

Job Vacancy Rates in Apparel Manufacturing and in All Manufacturing Industries, 1969-72

	Total Job Vacancy Rates 1/		Long-Term Vacancy Rates 1/	
	Apparel Mfg.	All Mfg.	Apparel Mfg.	All Mfg.
1969	1.9	1.3	1.2	.6
1970	1.4	.7	.7	.3
1971	1.2	.5	.6	.1
1972	1.4	.7	.6	.2
1973	1.7	.9	.7	.3

Source: Handbook of Labor Statistics, 1973, U.S. Bureau of Labor Statistics, Table 53 and Employment and Earnings, March 1974, Table E3.

1/ Vacancy rates are computed by dividing the number of vacancies by the sum of employment plus vacancies and multiplying the quotient by 100. Long-term job vacancies are those that have remained unfilled for 30 days or more.

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[1] Wrong, op. cit., pp. 63.

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Apparel Labor Market Contrasts: New York SMSA vs. North Carolina

In order to provide additional insight on labor market factors influencing the relocation of the apparel industry and related labor supply implications, we have selected two apparel manufacturing areas for comparison: the New York City SMSA and North Carolina. The New York area, as noted above, has experienced a severe reduction in apparel employment; North Carolina has experienced a rapid growth and ranked first among Southern states in total apparel manufacturing employment in 1970. Table 67 compares selected characteristics of these two areas:

Employment and Labor Force Trends -- Between 1960 and 1970, total apparel industry employment, as reported in the decennial Censuses, declined by more than one-third in the New York City SMSA, from 255,000 to 173,000; it nearly doubled in North Carolina, rising from 33,000 to 63,000. In New York, the apparel industry work force has included an exceptionally large proportion of older workers, as evidenced by a median age (for women employees) of 45.0 years in 1960, as compared to a median age of 41.4 years for all women workers in that area. Moreover, despite the high labor turnover in the industry and its limited skill requirements, relatively few younger workers entered the New York apparel industry in the following decade. As a result, the median age of New York female apparel workers rose sharply, to 48.4 years, as compared with a decline of about one-half year in the median age of all employed women in the New York area. In contrast, the apparel industry work force in North Carolina consists predominantly of younger women, and rose by only one year in median age between 1960 and 1970.

Table 67

Selected Characteristics of Apparel Workers, New York SMSA and North Carolina: 1960, 1970*

	New York SMSA		North Carolina	
	1960	1970	1960	1970
Employed Workers, Apparel Manufacturing (000)	254.6	172.9	33.0	62.9
Non-Whites as Percent of Total Apparel Workers	11.2	11.7	4.6	16.2
Median Age, Female Apparel Workers	45.0	48.4	38.1	38.1
Median Annual Earnings, All Women				
All Occupations	2,876	4,770	1,820	3,413
Apparel Workers	2,438	3,826	1,953	3,251
Ratio to Earnings in All Occupations	,85	.80	1.07	.95
Median Annual Earnings, Non-White Women				
All Occupations	2,344	4,501	754	2,128
Apparel Workers	2,329	3,826	N.A.	2,808
Ratio to Earnings in All Occupations	.99	.85	---	1.32
Median Annual Earnings, Puerto Rican Women (N.Y.C. only)				
All Occupations	N.A.	3,958	---	---
Apparel Workers	N.A.	3,615	---	---
Ratio to Earnings in All Occupations	---	.91	---	---

*Source: 1960 and 1970 Censuses of Population, Detailed Characteristics, New York and North Carolina (1960: Tables 128, 130. 1970: Tables 187, 189). Median annual earnings data refer to wage and salary workers with any earnings in 1959 and 1969, respectively.

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These contrasts in age structure are to be expected, to some extent, in any comparisons of declining and expanding industries or occupations. However, in combination with collateral information about recruitment difficulties experienced by New York apparel manufacturers in the late 1960's, they do suggest that reluctance of younger workers to enter this industry may have contributed to some degree to the reduction in apparel employment in the New York area.

The trends in racial composition of the apparel work force in these two areas also show a significant contrast. In New York, the percentage of non-white workers rose only slightly, from 11.2% to 11.7%, between 1960 and 1970. In North Carolina, the percentage of non-white workers rose sharply from 4.6% to 16.2%. This sharp increase paralleled the experience of most Southern states in this industry with the notable exception of those with large Spanish origin or other white "ethnic" populations, such as Florida, Texas and Louisiana.[1] It also closely paralleled the trend in the Southern textile industry, which resembles the apparel industry in many of its work force characteristics.

Several explanations have been offered for the relatively limited growth in the percentage of non-whites in the New York apparel industry, i.e., the general contraction in job opportunities in the industry, apparent employer preferences for Puerto Rican workers (who accounted for about the same proportion of the work force there, as did non-whites), and the rapid growth of New York welfare rolls, including a disproportionate number of black women.[2] In turn, the rapid growth in the non-white ratio in North Carolina

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1/ Elaine Wrong, op. cit., Table 24.

2/ Ibid., pp. 63, 97.

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and other Southern states has been attributed to a combination of rapid apparel industry employment growth and reduced availability of white women for these low wage jobs -- with some possible "assist" from the impact of federal equal employment opportunity programs.

Earnings Trends -- The extent to which differences in comparative earnings opportunities for women in each area affected the industry's labor force composition and growth potential can be further illustrated by the summary earnings comparisons in Table 67. In the New York City area, median annual earnings of women apparel workers in 1959 were $2438, nearly 20% higher than those of their counterparts in North Carolina but 15% below the median earnings of all New York women workers. Thus, by this criterion, apparel employment was unattractive to a large majority of women workers in the New York City area. In North Carolina, however, apparel worker earnings in 1959 were 7% above the corresponding median for all women workers, thus making work in apparel factories relatively desirable for a majority of women there.

By 1969, the relative earnings status of apparel workers had declined both in New York and North Carolina. In New York, female apparel worker earnings were 20% below the average for all women workers. In North Carolina, the ratio shifted from a positive differential of 7% in 1959 to an adverse differential of 5% in 1969, reflecting the general economic expansion of the state and the resulting broadening of job horizons for women workers there.

The above earnings comparisons refer to women of all races and ethnic origins. In the case of non-white women workers, the available data for 1969 indicate a striking contrast in relative earnings opportunities between

New York and North Carolina. In New York, apparel industry employment was nearly as undesirable an employment option for non-white women, as for white women, although more desirable to Puerto Rican women, based on relative earnings ratios for them. However, in North Carolina, non-white women in the apparel industry earned 32% more than the average for all North Carolina non-white women workers -- reflecting the continued concentration of the latter in low wage jobs such as domestics.

These comparisons, when related to such trends as the inflow of non-white women into Southern apparel factories in the 1960's, thus tend to support the hypothesis that apparel factory jobs became relatively less attractive to white Southern women, in turn compelling employers to modify earlier hiring practices and open up operative jobs to increasing numbers of non-whites, to whom such jobs still represented a step up the job ladder.

Interarea Differences in Apparel Employment Trends: An Econometric Approach

In an effort to broaden our assessment of the factors contributing to the recent geographical shifts in the industry, a number of econometric models were tested using our data base of over 60 large SMSA's, with 250,000 or more population, described in Chapter IV. In these models, the dependent variable was the percentage change in apparel industry employment between 1960 and 1970 (E_{60-70}). We postulated that this growth rate was a function of:

(1) Apparel operatives' earnings, as approximated by full-year median annual earnings of female sewers and stitchers in 1969 (W_S)

(2) Median 1969 earnings of all women with earnings (W_f)

(3) Female unemployment rates in each area (UNR)

(4) Average AFDC payments per family (AFDC)

(5) Percentage growth in area's total labor force between 1960 and 1970 (LF_{60-70})

After a series of tests, the most successful formulation of the apparel wage variable (W_{fs}) was one which expressed this as a ratio to AFDC payments (i.e., W_{fs}/AFDC), thus reflecting the gross income advantage of apparel industry wages as compared to welfare payments. The results are shown below, for all 61 SMSA's, and -- separately -- for Southern and non-Southern SMSA's in this sample. Elasticities at the mean are shown below the coefficients for each variable. The following notations are used to indicate statistical significance: * = .90, ** = .95; *** = .99, confidence intervals

All SMSA's (61)

$$E_{60-70} = -1.724 + 1.363 LF_{60-70} + 27.592\ UNR_{70} + 0.0256\ W_{fs}/AFDC - 0.0000760\ W_f$$

$$(0.903)^{***} \qquad (2.901)^{***} \qquad (1.490)^{***} \qquad (-0.616)$$

$$\bar{R}^2 = .316^{***}$$

Non-South SMSA's (36)

$$E_{60-70} = -2.601 + 1.673\ LF_{60-70} + 33.128\ UNR_{70} + 0.0123\ W_{fs}/AFDC + 0.000116\ W_f$$

$$(1.836)^{***} \qquad (6.822)^{***} \qquad (1.076) \qquad (1.900)$$

$$\bar{R}^2 = .350^{***}$$

South (25)

$$E_{60-70} = 8.296 + 0.105\ LF_{60-70} - 31.574\ UNR_{70} + 0.0281\ W_{fs}/AFDC - 0.00202\ W_f$$

$$(0.0494) \qquad (-1.903) \qquad (1.260)^{**} \qquad (-8.887)^{**}$$

$$\bar{R}^2 = .196^{*}$$

Thus, for the combined sample of 61 areas, the above findings indicate that apparel employment growth was greatest in areas of higher unemployment, in areas where the relationship of apparel workers' wages to public assistance payments was more favorable and where labor force growth, generally, was more rapid. These factors in combination explained nearly one-third of the observed variance and all were highly significant, at the .95 confidence level or above.

In the non-Southern areas, only two of these variables were significant -- the unemployment rate and the labor force growth rate. Neither the apparel wage relative to AFDC nor the general female earnings income were significant at the .90 confidence level. This model accounted for 35% of the total variance in apparel employment trends in the non-Southern SMSA's.

In the Southern SMSA's, two variables proved significant in accounting for variations in apparel employment growth. These were the full-year median earnings of all women in the area's labor force, which proved strongly and negatively correlated with apparel employment growth, and the relationship between apparel workers earnings and AFDC which was positively correlated with employment growth. The overall model accounted for only about one-fifth of the observed variation in apparel employment growth but was significant at the .90 confidence level. It should be noted, however, that separate regressions in the South, using the ratio of apparel employment growth to the area's overall labor force growth and limited to the above significant variables, resulted in an $\bar{R}^2$ value of .41, significant at the .99 confidence level.

The above analysis provides substantial confirmation of our hypothesis concerning the importance of labor market variables as major contributing

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factors in the geographic redistribution of the apparel industry during the past decade. The fact that the model did not explain a greater share of the total variation in apparel employment trends must be attributed in part to inherent limitations in the available data base. In particular, we should note the omission from this data base of many smaller areas, particularly in the South, which experienced significant growth in apparel employment, but for which the relevant data were not available from published Census sources. An effort was made, too, to test the effect of interarea differences in unionization, but this proved largely unsuccessful, possibly because of the lack of union membership data by SMSA rather than state. Finally, we should note that the possible effects of growth in the Spanish-origin labor force upon apparel industry trends could not be included in the model, because of absence of comparable data for this population group for 1960. Other limitations of the data base have been discussed in more detail in Chapter IV.

Some of the specific findings stemming from this analysis are summarized below:

1. Apparel employers have moved differentially to areas where large reserves of low wage female labor exist. This is indicated separately in the positive association between 1970 unemployment rates and employment growth in the non-South, and the strong negative association between median earnings of all women and employment growth in the South. In the South, apparel employees have also moved into areas where AFDC payments are lower, in relation to apparel worker earnings.

2. It is clear, too, that these separate labor market variables have had a differential impact upon intra-regional differences in apparel employment growth. For example, it is probable that the significant positive relationship to overall labor force growth in the non-South may be due to the greater relative growth in regional apparel markets in areas such as the West Coast, which continued to enjoy a relatively rapid rate of overall population growth during the 1960's.

3. Similarly, the highly significant positive relationship between 1970 female unemployment rates in the non-South and apparel industry employment trends -- and the absence of the relationship in the South -- may be due, in part, to the fact that such unemployment rates did not provide a satisfactory measure of female labor reserves in the more rural South.

4. Finally, we must assume that intra-regional and inter-area differences in product mix (e.g., degree of style orientation, price lines, etc.) as well as many other specific characteristics of area labor markets, e.g., proximity to textile and other material sources, also contributed to these locational trends and were inadequately reflected in our models.

Employment and Labor Supply Outlook

As suggested by our review of recent apparel industry trends, the longer-term employment outlook in the domestic apparel manufacturing industry will critically depend upon the extent of future import competition. Apparel expenditures by American consumers have accounted for about seven percent of total personal consumption expenditures in recent years. The most recent BLS

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projections, for example, provide for an increase in personnel consumption expenditures for nondurable goods from $300 billion in 1972 to $469 billion in 1985, in constant dollars.[1] The fact that population growth through 1980 will be most rapid in the younger adult age group -- which is normally much higher than average in per capita apparel expenditures -- has been noted as an additional favorable market factor. Based on these considerations, the Department of Commerce had anticipated -- as recently as in 1971 -- a relatively favorable growth outlook for the industry in the 1970's, provided that the growth rate of imports could be slowed.[2] Similarly, the Bureau of Labor Statistics has projected an employment level of 1,587,000 for the apparel industry in 1985, an increase of 16% over 1970.[3]

Quite apart from cyclical fluctuations in aggregate business activity, the uncertain outlook for import competition in the domestic apparel market has made any longer-term projections of domestic apparel production and employment particularly hazardous. This is compounded, too, by the vagaries associated with changing styles and consumer preferences, which may particularly impact upon the fashion-oriented branches of the industry. These uncertainties, in turn, probably account for the fact that in years subsequent to 1971, the Department of Commerce has omitted any discussion of the apparel industry outlook from its annual industrial outlook reports.

From the labor supply standpoint, our labor force projections do suggest, however, some prospective constraints on employment growth in

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1/ Ronald E. Kutscher, "The United States Economy in 1985," Monthly Labor Review, December 1973, p. 34.

2/ U.S. Industrial Outlook, 1971, p. 163.

3/ Based on unpublished BLS estimates provided to NPA by the Bureau of Labor Statistics in October, 1974.

the apparel operatives occupation. Based on our projections of the labor force by occupational group, the number of women workers in all operative occupations (other than transport) is expected to increase by 14% between 1970 and 1985, as compared to a projected increase of 16% in apparel worker requirements. The supply of apparel operatives, moreover, can be expected to increase at a lower rate than the average for all women operatives, in view of the low wage and status ranking of this occupation. Thus, under conditions of high aggregative labor demand and of some stability in the level of apparel imports, the apparel industry may be expected to experience labor recruitment difficulties in the 1980's similar to those evidenced in the late 1960's and early 1970's. This could be compounded, moreover, by high separations from the labor force in established apparel manufacturing centers, due to the large proportion of older workers in their labor force.

In view of the highly competitive nature of this industry and its geographic mobility, any squeeze on low-wage female labor supply for the industry in existing locations can be expected to prompt continued movements of the industry to remaining areas with reserves of low-wage female labor, as well as increased utilization of minority group workers, where available. Such factors as the rate of economic development of the deep South, the extent of unionization and the extent to which earnings of minority group women workers will "catch-up" with those of other women, will be important variables.

Enactment of recent welfare reform proposals, establishing minimum levels of welfare payments substantially above those now prevailing in many Southern states, would tend to raise the "reservation" wage of women

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workers there. As indicated in our econometric analysis, the relationship between apparel workers earnings and AFDC payments was identified as a key variable, affecting differential rates of employment growth. A national minimum welfare payment level could therefore have the effect of slowing down migration of apparel plants to low wage communities and raising the relative wage of apparel workers, generally.

C. Construction Laborers

The Changing Nature of the Construction Laborer Occupation

From the era of the Pyramids on, the construction laborer occupation has provided a historical prototype of heavy unskilled manual work, performed frequently under onerous conditions, by the lowest class or caste groups in society. This traditional image of the construction laborer job is succinctly summarized in one of the training pamphlets of the Laborers' Industrial Union of North America -- the largest union of organized construction laborers:

> "Not too long ago, a laborer contributed principally one thing to his job -- muscle. The tools he used -- pick, shovel, hand tamperer, crowbar -- were muscle tools. A man who had never used them before might be awkward for a few days, but he became pretty good with them by the time his blisters broke and he developed calluses. This laborer could get by without even knowing how to read or write...." 1/

1/ Laborers' Education and Training Pamphlet No. 27, Laborers' International Union of North America, 1972, p. 1. We wish to thank Mr. Marion Parsons, National Director of the LIUNA training program, for providing this and other union publications and his many helpful comments.

A considerable, although unmeasured, proportion of all construction laborer jobs probably still correspond reasonably closely to this description. However, the progressive introduction of mechanical, power-operated equipment for a wide range of specialized construction tasks has reduced the "back-breaking" aspects of many of these jobs and has imposed an increased requirement for at least a moderate degree of initial training. Thus, the 1970 Census occupational classification guide lists approximately 275 job titles which fall under the occupational category of construction laborer. These range from the more traditional unskilled labor jobs, such as "brick carrier", "hole digger" and "shoveller", to jobs such as "concrete vibrater operator" and "sand blast operator", which require operation of costly power-driven equipment. The latter types of jobs probably now constitute a substantial proportion of all jobs performed by construction laborers and are often analogous in skill requirements to those performed by semi-skilled operatives in many industrial occupations.

Some confirmation of the mixed skill composition of the construction laborer occupation is provided by the results of a 1963 Labor Department-CPS survey of occupational training of American workers. As was to be expected all but a small percentage of construction laborers responded that training for their job could best be acquired by either casual methods or informal on-the-job instruction. Nevertheless, only 13.4% indicated that no training of any type was needed for their occupation, as contrasted to 18.4% of laborers in manufacturing occupations and 25.2% in non-manufacturing occupations, other than construction.[1]

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[1] *Formal Occupational Training of Adult Workers*, U.S. Department of Labor, *op. cit.*, p. 45.

The nature of the construction laborer job, and the relative utilization of laborers as compared to skilled workers, vary considerably among the major branches of the industry. Private residential building is the largest single component of the industry, as measured by dollar value of new construction, and has constituted between one-third and two-fifths of total new construction activity in most recent years. Private non-residential building (commercial, industrial, institutional, etc.) has accounted for between one-fifth and one-fourth of the total. Other major components -- public utilities, public buildings and highways-- have each accounted for about 10% of the total dollar volume.[1/]

Private residential building is still conducted predominantly by small specialized contractor firms, whereas larger firms predominate in non-residential construction and in public works construction activities. The latter are more highly capitalized, make more extensive utilization of construction machinery and -- in turn -- tend to have a lower relative requirement for construction laborers. This is illustrated by a comparative analysis of the percentage of total construction manhours accounted for by on-site laborers, helpers and tenders in several categories of construction work surveyed by the BLS over the past decade. This ratio ranged from 20.7%, for hospitals to 36.0% for single family housing. (Table 68.)

In many respects, private residential building -- and particularly construction of single family homes -- constitutes a distinct "non-competing" sector of the industry, as compared to larger-scale construction activities. Although comprehensive occupational wage statistics by industry branch are not available, construction laborer wages in private residential

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1/ Construction Review, Table A1, December 1969, July 1973.

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Table 68

Manhours of On-Site Laborers, Helpers and Tenders as a Percent of Total Manhours per $1000 of Contract for Selected Construction Projects, by Region

Type of Construction Project and Year	U.S.	Regions			
		North-east	North Central	South	West
Hospitals (1960)	27.7	24.6	26.2	32.0	18.6
College Housing (1961)	31.8	24.9	29.5	40.5	24.7
Elementary and Secondary Schools (1961)	29.1	27.8	27.2	38.7	23.0
Federal Office Buildings (1962)	32.5	28.3	31.6	33.7	25.1
Public Housing (1964)	30.9	23.3	25.3	40.8	22.0
Hospitals (1971)	20.7	23.9	23.4	35.5	17.2
Single Family Housing (1969)	36.0	N.A.	N.A.	N.A.	N.A.

Sources: BLS Bulletins 1199, 1340, 1402, 1441, 1961, on labor requirements for various categories of construction.

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building, by most indicators are substantially lower than in other major sectors. This results, in part, from the differential extent of unionization in these two sectors. Whereas about 30% of all construction laborers were reported to be union members in a BLS survey conducted in 1970, spokesmen for the Laborers' International Union have estimated that only about one-fifth of those engaged in residential building are union members, as contrasted to possibly 40% or more of those engaged in the non-residential sector. The latter types of construction are, moreover, much more likely to be subject to the provisions of the Walsh-Healey Act which tend to link wage levels under federal government contracts to those established under local collective bargaining agreements. The impact of unionization upon construction laborer wage rates, in turn, is suggested by a BLS survey conducted in 1972, which indicated that straight time average hourly earnings of unionized construction laborers averaged approximately 40% higher than for non-union laborers in the same SMSA's. It is probable, however, that -- even in the absence of unionization -- significant intra-industry variation in wage rates would be observed, in view of the somewhat higher skill levels required of laborers in the more mechanized branches of the industry and the greater premium placed by these firms on assuring a reliable labor supply.

Despite these considerable intra-occupational variations, earnings of construction laborers, as a group, compare unfavorably with those in more skilled occupational categories. Of a total of 631,000 male construction laborers reported in the 1970 Census, only 47% had worked for a full year (50-52 weeks) in 1969, reflecting both a high proportion of seasonal and part-year workers in the occupation and its high incidence of unemployment.[1]

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[1] 1970 Census of Population, Occupational Characteristics, PC(2)-7A, Table 11.

Median earnings of "full-year" construction laborers were $6,199 in 1969--about 27% below those of full-year construction craftsmen and 17% below those of male non-transport operatives. On the other hand, full-year construction laborers' earnings were about 1% higher than those of all non-farm laborers and substantially above those of male workers in the personal service and farm laborer occupations included in our Group V category.[1] These earnings comparisons are thus quite consistent with our occupational status ranking of construction laborers at the upper range of Group V.

Other characteristics of this occupation, too, have contributed to its relatively low status ranking. Construction workers have typically experienced the highest unemployment rates of any large occupational group in the labor force as a consequence of the industry's high degree of seasonality, of the vulnerability of the industry to wide cyclical fluctuations and of the casual nature of hiring arrangements, particularly in the unorganized sectors of the industry. Thus, in March 1970, 13.2% of construction laborers were unemployed, as compared with unemployment rates of 8.2% for all non-farm laborers and of 3.6% for all male workers in the ECLF, 16 years and over.[2]

Finally, the construction industry is among the most hazardous of the Nation's industries, with work injury rates (in terms of man-days lost), nearly three times as high as the average for all manufacturing industries in 1970. Among major industries the construction industry rate was exceeded only by mining, lumber, motor transportation and by police and fire departments.[3]

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[1] 1970 Census of Population, Occupational Characteristics, PC(2)-7A, Table 11.

[2] Ibid., Table 15.

[3] Handbook of Labor Statistics, 1973, Table 163.

Although separate injury rates by occupation are not available, it is thus probable that construction laborers are more vulnerable to work injury than all but a few of the lower level occupations in our Group V or Group IV categories.

Employment and Labor Supply Trends

Until the late 1950's the decennial Censuses provided the only source of data on the construction laborer work force. Changes in occupational classification practices and in related Census enumeration procedures have limited the usefulness of these data for longer-term trend comparisons. According to Census statistics the number of employed construction laborers declined from 663,000 in 1950 to 650,000 in 1960 and 601,000 in 1970. Over these two decades, their proportion of the total male employed labor force fell from 1.62% in 1950 to 1.26% in 1970. In contrast, CPS statistics available for the past decade indicate an increase in annual average employment of construction laborers from 784,000 in 1960 to 812,000 in 1970, and a smaller decline in their proportion of total male employment -- from 1.79% in 1960 to 1.65% in 1970. (Table 69.)

Some of the disparity in 1960-70 trend between the two sources may be due to differences in each of these two Census years between construction laborer employment levels at the time of Census enumeration, in the last week of March (when construction activity is relatively low seasonally) and the corresponding annual average levels, as reflected in CPS data. It is probable, too, that -- although there was no significant change in Census occupational classifications for this group between 1960 and 1970 -- related changes in Census enumeration and editing procedures may have affected the comparability of the latter data. It is possible, for example,

Table 69

Trends in the Construction Laborer Work Force: 1950-1970

(Numbers in thousands)

Year	Decennial Census 1/			CPS Annual Averages 2/	
	Const. Laborers in ECLF	Employed Const. Laborers		Employed Const. Laborers	
		No.	% of Total Employed Males	No.	% of Total Employed Males
1950	763	663	1.62	---	---
1960	791	650	1.48	784	1.79
1970	693	601	1.26	812	1.65

1/ U.S. Census of Population, 1960, U.S. Summary, Detailed Characteristics, Tables 201, 202.
U.S. Census of Population, 1970, Occupational Characteristics, Tables 1,38.

2/ From unpublished CPS tabulations, courtesy of Bureau of Labor Statistics.

that extensive reliance upon self-enumeration procedures in the 1970 Census may have resulted in a considerable "upgrading" of reported occupations, particularly among younger workers, as compared to the 1960 Census, when self-enumeration was first introduced on a nationwide scale. This bias would not be present to the same extent in the CPS, which has relied upon direct interviews with household members throughout this period. Furthermore, a comparison of the CPS annual average data for construction laborers since 1960 with the trend in total payroll employment in the contract construction industry suggests that the CPS series provides the more reliable measure of recent employment trends in this occupation. (Table 70.)

In any event, both the Census data and the CPS/BLS annual data indicate that construction laborers have declined relative to the total construction industry work force. Based on Census data, the ratio of construction laborers to total construction industry employment fell from 19 laborers per 100 total employed construction workers in 1950, to 17 per 100 in 1960 and 13 per 100 in 1970. Although directly comparable industry employment trend data are not available for the CPS series, the comparisons in Table 70 indicate that between 1960 and 1973, payroll employment in contract construction rose by 26.5%, as contrasted to an increase of only 8.2%, for construction laborers, as measured by the CPS.

The declining relative requirement for construction laborers in recent decades undoubtedly reflects a much longer-term trend, similar to that in other components of the low-skilled blue collar labor force. It is closely associated with the major technological changes in the construction industry, including

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Table 70

Employment of Construction Laborers and Total Construction Industry Employment: Annual Averages, 1960-73

Year	Construction Laborers 1/		Contract Construction Industry Employment 2/	
	No. (000)	Index, 1960=100	No. (000)	Index, 1960=100
1960	784	100.0	2,885	100.0
1961	737	94.0	2,816	97.6
1962	728	92.9	2,902	100.6
1963	712	90.8	2,963	102.7
1964	770	98.2	3,050	105.7
1965	785	100.1	3,186	110.4
1966	712	90.8	3,275	113.5
1967	730	93.1	3,208	111.2
1968	739	94.3	3,285	113.9
1969	801	102.2	3,435	119.1
1970	812	103.6	3,381	117.2
1971	823	105.0	3,411	118.2
1972	872	111.2	3,521	122.0
1973	848	108.2	3,649	126.5

1/ Source: *Current Population Survey*. Excludes small-number of female construction laborers.

2/ Source: Bureau of Labor Statistics data, based on establishment reports *Manpower Report of the President, 1974*, Table C-1.

progressive substitution of power equipment for hand labor; the introduction of labor saving materials, such as reinforced concrete in lieu of masonry; the larger scale of construction projects and the increased role of off-site assembly in the industry in recent years. These trends have been most apparent in the non-residential sectors of the industry.

It should be noted, however, that not all technological change has operated to reduce the proportion of unskilled workers required in building projects. Thus, in the case of single family housing construction, a BLS survey in 1969 found that the percentage of total manhours for laborers, helpers and tenders had increased since an earlier 1962 survey, as a result of increased use of prefabricated materials which had served to reduce the relative requirement for carpenters or other skilled craftsmen.[1/]

As in other low-level occupations, the labor supply for construction laborer jobs has been drawn disproportionately from the most disadvantaged elements of the labor force -- recent immigrants, non-whites and from among the least-educated. In 1910, nearly one-half (49%) of all construction laborers were either foreign born or black.[2/] With the sharp reduction of immigration following World War I, the proportion of foreign born white workers in the occupation dropped sharply in subsequent decades, from 30% in 1910 to 8.5% by 1950. They were replaced both by native white workers and by black workers. The proportion of the latter rose from 19.0% to 25.9% over this period.

[1/] Robert Ball and Larry Ludwig, "Labor Requirements for Construction of Single Family Housing," Monthly Labor Review, September 1971, p. 13.

[2/] Alba Edwards, op. cit., Table 16.

Construction laborers, as a group, were also characterized by a very low level of educational attainment. In 1960, only 19.0% of all construction laborers had completed 12 or more years of schooling, as contrasted with an average of 47.6% for all experienced male workers and of 21.1% among those in Group V occupations, as a whole.

The decade of the 1960's witnessed a significant shift in the composition of the construction laborer work force. Based on decennial Census data, the proportion of younger workers, aged 16-24 years, in this occupation rose from 18.5% in 1960 to 26.5% in 1970. This increase was due entirely to an inflow of younger white men into construction laborer jobs, and -- in turn -- contributed to a particularly sharp increase in the proportion of high school graduates among construction laborers, from 19.0% in 1960 to 33.6% in 1970. At the same time, the overall proportion of non-whites in the occupation fell from 29.6% in 1960 to 25.6%, reflecting relatively high withdrawal rates on the part of adult non-white men from construction laborer work. These trends are summarized in Table 71, and -- in more detail -- in Chapter III.

In view of the disparity in overall trends in constructional laborer employment during the 1960's between the decennial Census and the CPS, we have also shown, in Table 71, available CPS data on the compositional characteristics of employed construction workers. The latter data, based on annual average employment levels, show a much higher proportion of younger workers in the employed construction laborer work force than in the decennial Census, reflecting the large proportion of youth who engage in this employment during the peak summer months of construction activity. Between 1962

Table

Recent Trends in Composition of Construction Laborers Work Force

	Percent of Total Construction Workers
Decennial Census Data, ECLF	
Percent aged 16-24:	
1960	18.5
1970	26.5
Percent non-white:	
1960	29.[illegible]
1970	25.6
Percent with 12 or more years education:	
1960	[illegible]9.0
1970	33.6
CPS Annual Average Data, Employed Workers	
Percent aged 16-24:	
1960	26.0
1970	33.4
1973	43.[illegible]
Percent non-white:	
1960	[illegible]0.6
1970	25.1
1973	22.1

Sources: Decennial Census data from [illegible] Report.

and 1970, the percentage of 16-24 year olds among employed construction laborers rose from 26.0% to 33.4%, an increase paralleling that shown by the decennial Census between 1960 and 1970. Moreover, this proportion continued to rise sharply, to 43.8% in 1973, as a result of an increase of 99,000 in the number of 16-24 year olds employed as construction laborers between 1970 and 1973, concurrent with a reduction of 64,000 among those 25 years and over.

Similarly, the CPS data suggest a continued withdrawal of black workers from this occupation. Between 1960 and 1970, the percentage of non-whites among employed construction laborers fell from 30.6% to 25.1%, a slightly greater reduction than indicated by the comparable decennial Census data. It continued to drop, to 22.1%, in 1973. Even at the latter date, however, non-white workers continued to be disproportionately represented in the employed construction laborer work force by a ratio of about two to one.

In summary, the period since 1960 has witnessed a significant transformation of the construction laborer work force from one staffed predominantly by mature men workers with low educational levels -- and including a large proportion of blacks -- to one increasingly reliant upon better educated white youth, particularly during peak seasonal periods of construction activity.

Earnings of Construction Laborers

Until 1972, when the BLS conducted an initial survey of both union and non-union construction wage rates in selected SMSA's, data on wage rates and hourly earnings of construction laborers, as well as for other construction crafts, were largely based on BLS surveys of union wage rates in these occupations. Over a period of decades, there has -- at least until recently --

been a long-term decline in the differential between union wage rates for construction laborers and helpers and those for journeymen in the skilled construction crafts. Thus, between 1913 and 1952, real wages for unionized helpers and laborers are estimated to have increased by 182% as compared to 98% for journeymen, according to Haber and Levinson.[1] The skilled-unskilled differential tended to narrow more rapidly during wartime periods of general labor shortage, i.e., during World War I and World War II; it tended to widen during periods of depression, notably during the early 1930's.

This long-term trend towards a narrowing of skill differentials in wage rates in the construction trades was paralleled by similar trends for the labor force, as a whole, and has been generally attributed to such labor supply factors as the stoppage of large-scale immigration and the rapid educational upgrading of the labor force. These served to reduce the supply of workers for low-level jobs, on the one hand, while increasing the proportions qualified for both white collar and the more skilled blue collar jobs.[2]

A more recent analysis, by Gustman and Segal, has indicated a further significant decline in the skilled-unskilled wage rate differential between 1953 and 1961, but no clearcut trend during the decade of the 1960's. Annual fluctuations in this relationship were found to be correlated with cyclical movements in construction industry unemployment. During periods of upswing in construction labor demand, skilled wage rates were found to increase more rapidly than for unskilled workers -- thus tending to slow down, or reverse, the longer-term historical trend.[3]

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[1] D. Haber and H. Levinson, Production and Productivity in the Building Trades, (Ann Arbor, 1956), Chapter X.

[2] See, for example, Lloyd G. Reynolds and Cynthia H. Taft. The Evaluation of Wage Structure, (New Haven: Yale University Press, 1956). pp. 355-38.

[3] Dan Gustman and Martin Segal, "The Skilled-Unskilled Wage Differential in Construction," Industrial and Labor Relations Review, January 1974.

A general assumption in the literature on construction industry wage trends is that the demand for labor in the industry is inelastic, particularly with respect to specific construction occupations.[1] This does not appear to be an unreasonable assumption in view of the fact that on-site labor costs account for only about 26% to 30% of construction costs, depending upon the type of project, and that wages of construction laborers represent only a modest fraction of the total construction payroll.

Nevertheless, there is some evidence suggesting that the relative utilization of unskilled or semi-skilled construction laborers, as compared to skilled craftsmen, does vary in relation to the respective wage rates for these categories of labor. For example, the wage differential between construction laborers and skilled craftsmen, such as carpenters, has been much wider in the South than in other regions -- a pattern typical of the occupational wage structure, generally, in this region. At the same time, a number of BLS surveys of both residential and non-residential construction projects have consistently indicated that construction laborers, helpers and tenders account for a higher proportion of total on-site manhours in the South than in other regions. For example, a 1964 BLS survey of labor requirements for public housing projects indicated that laborers, helpers and tenders constituted 41% of on-site manhours in the South, as contrasted to about 25% in the North Central region, 23% in the Northeast states and 22% in the West. (See Table 68.) These variations appear to be accounted for in part by a number of inter-regional differences affecting construction technology including: (1) the greater use of load-bearing masonry in the South, with its higher manhour requirements, (2) the small size of contracts in the South, implying less use of labor-saving equipment, and (3) the greater manhours required in non-metropolitan locations (more frequent in the South). Although the empirical data base does not permit a complete identification of these and other factors affecting regional variations in occupational staffing, it appears probable that the greater availability of low-wage construction laborers in the South -- typically non-union and black -- has been a significant contributing factor.[1/]

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[1] Haber and Levinson, op. cit., p. 217. The authors note, however, the absence of empirical evidence to suggest this assumption.

In view of the wide observed regional differentials in relative wages for unskilled workers in the construction industry, we have attempted, through use of econometric models, to determine the extent to which labor supply factors have contributed to these variations. For this purpose, median annual earnings data, by SMSA, have been used as a "proxy" for actual wage rates or hourly earnings. The major portion of this analysis was based on published Census data for 68 SMSA's with 250,000 or more population, used as the data base for the econometric studies described in Chapter IV. Relative occupational earnings for construction laborers were computed separately, as a ratio to earnings of carpenters$(W_{ij}/WCARP_j)$ and to a "standardized" occupational wage level for each SMSA$(W_{ij}/WSTD_j)$, based on an average of median earnings in selected male occupations in each SMSA, using fixed national employment weights. (See Chapter IV)

The various models tested postulated that relative wages of construction laborers were a function of:

[1/] See, for example, BLS Bulletin, 1961, Labor and Material Requirements for Hospital and Nursing Home Construction, (GPO, 1971) and BLS Bulletin 1402, Labor and Material Requirements for Public Housing Construction, (GPO), 1964).

(1) certain characteristics of the occupational labor supply of each SMSA, i.e., the proportions of the occupation who were black ($PCTBLACK_{ij}$), who were aged 16-24 ($YOUTH_{ij}$), or who had 12 or more years of education ($ED12P_{ij}$);

(2) the percentage of the occupation which was unionized ($PCTUNION_j$);

(3) general labor market conditions in the SMSA as measured by relative unemployment rates for construction laborers as compared to those of carpenters ($UNRCNLBR/UNRCARP_j$) and by the labor force participation rates for males aged 16-24; and

(4) relative labor market opportunities for black workers, as compared to white male workers, as measured by the respective proportions who were high school graduates in the SMSA ($ED12BM/ED12WM_j$) and by the ratio of median annual earnings of black males to white males in the SMSA.

Certain of the models also introduced additional possible explanatory variables, such as the proportion of construction contracts awarded for non-residential vs. residential construction (MIX_j), the proportion of the SMSA labor force employed in higher wage industries ($PCTHIW_j$) and the proportion of construction laborers who were of Spanish origin.

Our hypothesis, generally, was that differential concentrations of youth and of blacks in the occupation as well as higher relative unemployment rates in the occupation would tend to depress relative wage rates for construction laborers, whereas such factors as a higher concentration of better-educated workers, greater relative economic opportunities for black workers and a greater degree of unionization in the occupation would tend to raise relative wage rates. Major findings of these studies are summarized below:

1. Labor supply factors, in combination with the unionization variable, were found to explain a major portion of the inter-SMSA differences in relative earnings of construction laborers, as indicated by coefficients of variation ($\bar{R}^2$) of .641 and .774 on alternative formulations of this model. (Tables 72 and 73.) These coefficients are considered very satisfactory for cross-sectional models of this type, particularly in view of inherent limitations of the available data base. They were superior to similar coefficients derived from our analyses of inter-area differences in relative wages in other selected low level occupations.

2. In the model using the ratio of earnings of construction laborers to those of carpenters as a dependent variable, we found that -- both for the full sample of all SMSA's and for the non-Southern SMSA's, separately analyzed -- the most significant single explanatory variable was the relative education of black males to that of white males in the SMSA. Relative wages of construction laborers rose as the education of black males approached that of whites, with an elasticity at the mean of .30 in the overall model. Relative wage rates for construction laborers also tended to rise with the degree of unionization of this occupation relative to that of carpenters. Conversely, higher concentrations of younger workers in the occupation (relative to carpenters), as well as high relative unemployment rates for construction laborers tended to reduce relative earnings of construction laborers. Elasticities for the latter variable were however quite low. It should also be noted that the regressions for the Southern SMSA's did not produce significant results under this and alternative formulations.

Table 72

Elasticities from Wage Differential Model Using Ratio of Earnings of Full-Year Construction Laborers to Standardized Occupational Earnings Index, by Region, 1970

Dependent Variable $\frac{W_{ij}}{WSTD_j}$	Mean	Independent Variables								
		$ED12P_{ij}$	$PCTBLK_{ij}$	$YOUTH_{ij}$	$WSTD_j$	$PCTHIW_j$	$PCTUNION_j$	MIX_j	$\bar{R}^2$	F
All SMSA's	7583	.1654**	-.0491**	-.1137**	---	.2268**	.0335	.0045	.774	32.986**
Non-South	7787	.1421**	-.0501**	-.1020**	---	.1302	.0782**	.0198		19.285**
South	7314	.1059	-.0471	.2800	---	.2217	1.1196	.0567	.279	2.483

** = significant with .95 level of confidence

* = significant with .90 level of confidence

See Table 54, Chapter IV for definitions of variables.

Table 73

Elasticities from Wage Differential Modeling Using Ratio of Earnings of Construction Laborers to Earnings of Carpenters as Dependent Variable

Dependent Variable Form	Independent									
	$(\frac{UNRCNSLBR}{UNRCARP})_j$	$(\frac{CNSLBR1624}{CARPENT1624})_j$	$(\frac{PCTUNIONCNSLBR}{PCTUNIONCARPENT})_j$	$(\frac{ED12BM}{ED12WM})_j$	$(\frac{WBM}{WWM})_j$	$(LFMPCTBLK)_j$	$(PCTED12P_j)$	$PRM1624_j$	$\bar{R}^2$	F
1970: $(\frac{WCNSLBR}{WCARPENT})_{fy}$ a/ All SMSA's	-.0386**	-.0437	.0891**	.3030**	.1047	---	---	---	.641	20.979**
Non-South	-.0484**	-.0814**	.0746*	.2754**	.0326	---	---	---	.501	7.433**
South	.0685*	-.1132	.0986	-.0163	-.2483	---	---	---	.061	1.300
$(\frac{WCNSLBR}{WCARPENT})_{me}$ b/ All SMSA's 1970:	-.0837**	---	---	---	.5345**	-.0538**	-.0180	-.1997	.548	14.589**
1960:	-.0671	---	---	---	.3409**	-.0494**	.0119	-.2264	.376	7.757**

** = significant with .95 level of confidence
 * = significant with .90 level of confidence

a/ fy refers to earnings of full-year workers as defined by the Census Bureau; note that a full-year worker does not imply necessarily a full-time workers.

b/ me refers to median annual earnings of all workers, including both full-year and part-year workers.

3. In the model using the ratio of construction laborers' earnings to the standardized area earnings average, we also found that higher concentrations of youth and of black workers had a depressing effect upon relative wages, whereas higher concentrations of more educated workers as well as a higher degree of unionization (in the non-South) were associated with higher relative wages. A greater concentration of the male labor force in higher wage industries was also associated with higher relative wages for the construction laborers.

4. Finally, a comparison of cross-sectional models for 1960 and 1970 was made, based on the ratio of median earnings of all construction laborers to those of carpenters, since data for full year workers only were not published in 1960. The most significant explanatory variable in these models was found to be the relative median earnings of blacks to those of white male workers, which provided a measure of relative economic opportunity of blacks in the various SMSA's. The elasticity of this variable, moreover, rose from .34 in 1960 to .53 in 1970, suggesting more sensitivity of the unskilled-skilled wage differential in 1970 to reductions in labor market discrimination against black workers. Other variables found to be significant -- but with much lower elasticities -- were differential unemployment rates (1970 only) and percentage of black males in the labor force.

Factors Affecting Composition of Construction Laborer Work Force

The preceding analyses demonstrated that inter-area differences in the characteristics of the construction laborer work force (i.e., race, age, education), as well as other labor market variables, have been significantly associated with differences in relative earnings of construction laborers. A corollary of this analysis is to attempt to identify, in turn, the key factors which are associated with differences in the relative concentrations of blacks, youth or more educated workers in construction laborer jobs. The overall availability of workers with these characteristics for employment in lower level occupations is expected to change significantly in the coming decade -- hence an identification of the factors contributing to their differential participation in a specific lower-level occupation, i.e., construction laborers, may provide useful insights concerning their responsiveness to such inducements as increases in relative wages, if these are needed to attract additional workers.

In the case of youth, for example, it is relevant to know what factors have been most closely associated with the sharp increase in the proportion of youth employed as construction laborers during the past decade. Since the available time series data is very limited for such an analysis, we have attempted to derive some insights from analysis of our cross-section of SMSA's in 1970. Simply stated, were the inter-area differences in the proportion of youth in construction laborer jobs solely a function of differences in the proportion of younger workers in each area's labor force, or were other factors, such as differences in labor market conditions, in relative wages or in relative availability of "competing" labor force groups, also significant?

The empirical findings for the youth "concentration" equation (Table 74) indicate that, as expected, the percentage of youth in construction laborer jobs varied directly with their overall proportion in the SMSA labor force (elasticity, 1.33); that it was higher in areas where relative wages of construction laborers were lower (elasticity, -.55) and that it was lower in areas where more youth were neither in school nor at work.

These findings in turn imply that the influx of youth into construction laborer jobs during the past decade was indeed a key factor checking the relative growth in construction laborer wages during the 1960's. Conversely, the projected decline in the percentage of younger workers in the labor force -- other factors being equal -- can be expected to result in a somewhat more-than-proportionate reduction in their availability for construction laborer jobs and in an increase in relative wages. The findings also suggest the potential for increasing the supply of such youthful workers for construction laborer jobs by tapping the labor reserve of unemployed out-of-school youth.

The "educational" concentration variable, in Table 74, is defined as the proportion of high school graduates in construction laborer jobs as a ratio to the corresponding proportion for all men in the area's labor force. The most significant finding in this analysis was the relative high propensity of better educated men to enter construction laborer jobs -- at least temporarily -- in response to higher wage rates for such work, as evidenced by an elasticity of 1.8, in relation to the relative wage rate, $E_{C/S}$. Thus, an increase in the overall educational level of the labor force, per se, is not indicated as a significant obstacle to filling these jobs, under assumed conditions of relatively inelastic demand for construction laborers.

The results from the third "concentration" equation -- that for black workers -- tend to confirm the relationship expected from "crowding" theories, i.e., that a high proportion of blacks, or other disadvantaged minorities, in a given population is associated with a lower relative wage for that

Table 74

Elasticities from Education, Age and Black Concentration Equations -- Standard Form

ducation/ [illegible] [illegible] Name	Mean	Independent																
		$\frac{W_{ij}}{WSTD_j}$	$\frac{WBM_{ij}}{WBM_j}$	$(\frac{EMED12P}{CLF})_j$	$(\frac{FYEBM_i}{FYEAM})_j$	$INCFAMID_j$	$\frac{YOUTH_{ij}}{YOUTH_j}$	$YOUTH_j$	$PRM1624_j$	$LFPCTSPO_j$	$PCTM16NLF_j$	$ED12P_j$	$\Sigma\triangle(N_{ij}/N_j)$	UNR_j	$POTUNION_{ij}$	$\triangle POPNW_j$	$\bar{R}^2$	F
$D12P_{ij}$	.2969	1.7569**	—	-.0946**	—	—	.3609**	—	—	—	—	.1345	-.0002**	.0196	—	—	.697	19.41
$YOUTH_{ij}$	.2594	-.5462*	—	—	-.6645	.2890	—	1.3316**	—	.0099	-.2602**	—	.0000	—	—	—	.483	7.53
$BLKCONC_{ij}$	2.8268	-.8468**	.1900**	—	-1.7671**	—	—	.2311	.4514	-.0197					.2282**	.0052	.266	3.54
SS	2.5794	-1.7595**	.2461**	—	-2.4703**	—	—	.9856	-.7808	.0477					.9344**	-.0212	.317	2.85
S	3.1659	.7992	.0982	—	-1.6097**	—	—	.6048	1.0270*	-.0534					.0785	.0395	.298	2.397

** = significant with .95 level of confidence
* = significant with .90 level of confidence

See Table 54, Chapter IV for definitions of variables.

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These findings in turn imply that the influx of youth into construction laborer jobs during the past decade was indeed a key factor checking the relative growth in construction laborer wages during the 1960's. Conversely, the projected decline in the percentage of younger workers in the labor force -- other factors being equal -- can be expected to result in a somewhat more-than-proportionate reduction in their availability for construction laborer jobs and in an increase in relative wages. The findings also suggest the potential for increasing the supply of such youthful workers for construction laborer jobs by tapping the labor reserve of unemployed out-of-school youth.

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The results from the third "concentration" equation -- that for black workers -- tend to confirm the relationship expected from "crowding" theories, i.e., that a high proportion of blacks, or other disadvantaged minorities, in a given population is associated with a lower relative wage for that

Table 74

Elasticities from Education, Age and Black Concentration Equations -- Standard Form

Jucation/ [illegible] [illegible] Name	Mean	Independent																
		$\frac{W_{ij}}{WSTD_j}$	$\frac{WBM_{ij}}{WBM_j}$	$(\frac{EMED12P}{CLF})_j$	$(\frac{FYEBM_i}{FYEAM})_j$	$INCFAMID_j$	$\frac{YOUTH_{ij}}{YOUTH_j}$	$YOUTH_j$	$PRM1624_j$	$LFPCTSPO_j$	$PCTM16NLF_j$	$ED12P_j$	$\Sigma\triangle(N_{ij}/N_j)$	UNR_j	[illegible]	$\angle$[illegible]	$\bar{R}^2$	F
$D12P_{ij}$	.2969	1.7569**	—	-.0946**	—	—	.3609**	—	—	—	—	.1345	-.0002**	.0196	—	—	.697	19.422**
$YOUTH_{ij}$	.2594	-.5462*	—	—	-.6645	.2890	—	1.3316**	—	.0099	-.2602**	—	.0000	—	—	—	.483	7.535**
$BLKCONC_{ij}$	2.8268	-.8468**	.1900**	—	-1.7671**	—	—	.2311	.4514	-.0197					.2282**	.0052	.266	3.541**
2S	2.3794	-1.7595**	.2461**	—	-2.4703**	—	—	.9836	-.7808	.0477					.9364**	-.0212	.317	2.934*
S	3.2659	.7992	.0982	—	-1.6097**	—	—	.6048	1.0270*	-.0534					.0785	.0395	.298	2.397

** = significant with .95 level of confidence
* = significant with .90 level of confidence

See Table 54, Chapter IV for definitions of variables.

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occupation. However, the most important explanatory variables in this model are those which measure the relative economic status of black workers in various labor markets. The median earnings of black men relative to white men provides a useful index for this purpose. The relationship proved particularly significant in the non-South where a one percent increase in the black:white earnings ratio was associated with about a 2.5 percentage point decline in the concentration of blacks in construction laborer jobs. Conversely, the black concentration index shows a significant, but relatively inelastic relationship, to the ratio of black workers' earnings as construction laborers to earnings of all black workers (WBM_{ij}/WBM_j). On balance, these relationships thus confirm the hypothesis that the proportion of black workers in construction laborer jobs will continue to decline as a result of narrowing of both the educational and income gaps between black and white workers.

Employment Outlook

Projections of construction industry output and employment, under full employment assumptions, generally anticipate substantial growth in this sector in the coming decade. The most recent BLS projections issued in December 1973, thus provide for an increase of 39% in construction industry gross output (in constant 1972 dollars) from $56.0 billion in 1972 to $77.9 billion in 1985. Productivity in contract construction is projected to grow at very moderate rates: 1.5% per year between 1972 and 1980, and 0.8% between 1980 and 1985. After allowance, in addition, for a small assumed increase in average annual hours per construction worker, the BLS has projected an increase in total contract construction payroll employment of 19%, from 4,352,000 in 1972 to 5,184,000, in 1985.[1/] In turn, BLS staff have projected an increase in employment of construction laborers from an annual average of about 870,000 in 1972 to about 1.0 million in 1985.[2/]

This BLS projection of growth in construction laborer requirements of about 15% between 1972 and 1985, can be contrasted with our projection that the number of males available for all categories of non-farm laborer jobs will increase by only 5% between 1970 and 1985, (Chapter V). More specifically, the analysis of recent trends in the construction laborer work force has revealed that employment in this occupation increased in recent years because of a large scale inflow of younger white workers, offsetting the withdrawal of older men, particularly blacks -- many of whom apparently progressed to higher wage, higher status occupations. Such factors as the generally high level of labor demand in the late 1960's, as well as rising educational levels and reduced discrimination against blacks in higher level occupations contributed to the significant declines in participation of older men in this occupation.

If high employment levels are restored before the end of this decade, these factors would again be operative. At the same time, the overall labor supply of younger men is projected to decline, beginning in the late 1970's, as illustrated by a projected reduction of 13% in the male labor force aged 16-21 years, between 1980 and 1985. Moreover, a reduced supply of those entrants into the labor force in the 1980's will tend to more than proportionately reduce the percentage of these younger men available for construction laborer jobs in the absence of higher relative wages or other inducements.

1/ Ronald E. Kutscher, "Projections of GNP, income, output and employment; *Monthly Labor Review*, December 1973, pp. 27-42.

2/ Unpublished BLS estimates.

(This is suggested by the elasticity of 1.33 on the youth population variable, in our youth concentration equation, per Table 74.) Thus, it is evident that, to meet the BLS-projected employment levels, construction employers will have to recruit a significantly higher proportion of the available low-level male labor force than in recent years. One of the consequences will be a probable resumption of the longer-term trend towards narrowing of the unskilled-skilled labor wage differential in the construction industry.

It should be noted, however, that there is a very large potential for more effective utilization of available labor resources in this occupation, through "decasualization" of the work force (as in longshoring), through systematic efforts to reduce seasonality and through improved labor market organization--all of which should contribute to both a reduction of the chronically high unemployment rate in this occupation and to an increase in its attractiveness as compared to other lower-skilled jobs. Improved opportunities for on-the-job training and for upgrading of laborers to journeymen jobs would also increase the ability of employers to recruit younger men for this work.

Our assessment--thus far--has assumed an inelastic demand for construction laborers, based on a premise of complementarity of laborer requirements to those for skilled labor. Our review of regional differences in the relative utilization of construction laborers (Table 68) suggested that -- in addition to other factors--the lower wage level for construction laborers in the South has resulted in a higher utilization of unskilled labor, in lieu of more capital-intensive construction methods or materials. This implies that any substantial increase in construction laborer wages in the South may provide the impetus for increased labor productivity growth there; hence, reducing the overall requirement for construction laborers.

In summary, therefore, our assessment suggests that if overall construction activity does expand, as indicated by recent projections, this will result in a considerably tighter labor market for unskilled construction labor in the 1980's than in the preceding decade and in a probable increase in relative wages for construction laborers. In addition, there are other socially desirable options which will be available to employers, organized labor and to labor market agencies which will facilitate meeting these manpower needs and which should be systematically encouraged by private and public manpower policies.

D. Hospital Attendants[1/]

Occupational Status

Hospital attendants include workers classified as nursing aides, orderlies and attendants in the 1970 Census. They perform a variety of duties requiring limited training that contribute to the comfort and care of patients in hospitals and other health facilities, including such personal care duties as serving meals, making beds, bathing and dressing patients and giving massages, as well as taking temperatures and setting up of medical equipment. They are at the lower end of the occupational hierarchy among health care personnel, working in a supporting role to registered nurses (RN's) and licensed practical nurses (LPN's) and--in turn--enabling the latter to

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[1/] Except as otherwise noted, data cited in this section are adapted from Neal Rosenthal and Dixie Sommers, The Supply of Hospital Attendants, which is a separate technical paper prepared for this Report.

devote more time to work that requires professional and technical training.

The occupational status of hospital attendants, based on our analysis of the labor force composition of this occupation in 1960, places them at about the 20th percentile in the rank ordering of occupations, or close to the mid-value of our Group IV category.[1] This is a significantly higher status than the three other lower-level occupations selected for detailed analysis in this chapter. The following characteristics of the occupation, when viewed as a composite whole, tend to confirm this rank ordering:

Earnings -- Hospital attendants rank relatively low in wage levels, even in relation to other lower level occupations. A useful approximation of their relative annual full-time wages is provided by a special tabulation, based on 1960 decennial Census data of workers, employed 48 weeks or more in 1959, and who also worked 35 hours or more in the Census survey week, in 1960.[2] Based on this measure, hospital attendants ranked lower than any other occupational subgroup in our Group IV category, other than housekeepers and babysitters and waiters and counter and fountain workers. Hospital attendants' earnings were also lower than those of many of the Group V occupations.

One factor contributing to these low earnings has been the high concentration of women workers in the hospital attendants' occupation. In 1970, women comprised 85% of the hospital attendants' work force, a much higher proportion than in most other lower level occupation groups, other than private household workers. However, even comparisons limited to women workers indicate that annual earnings of hospital attendants employed 50-52 weeks in 1969 were lower than those of women in other major "low level" Census occupational groups, other than private household workers and other personal service workers.

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[1] *Phase I Report*, Table I-3.

[2] *Ibid*.

Training and Education -- In contrast to their relatively low ranking in terms of wages, hospital attendants rank significantly higher than most Group IV or Group V occupations, in terms of such criteria as training requirements and the average educational level of incumbents of these jobs. In the 1963 Labor Department-Census survey of formal occupational training, a majority of hospital attendants identified on-the-job learning as the source of their own training and as the "most helpful way" of learning their jobs. However, only 5% of the hospital attendants survey indicated that no training was needed for their occupation, as contrasted to 28% of the private household workers, 22% of the janitors, 18% of the laborers and 9% of all operatives and kindred workers.[1] Moreover, about 56% of female hospital attendants in the experienced civilian labor force had completed 12 or more years of education in 1970, as contrasted to only 43% of women in all Group IV occupations and 30% of women in Group V occupations.[2]

Other Status Criteria -- In addition to pay and training, many other -- less measurable -- attributes of the work have affected the scale of preference of workers for hospital attendant jobs, as compared to alternative lower level jobs open to them. By most standards, many of the tasks performed by hospital attendants would be regarded as unpleasant and dull. This is illustrated by Studs Terkel's case study of one young woman working as a nurses' aide who described her duties as "makin' beds and bed pans and rotten stuff like that."[1/] The absence of any structured promotional opportunities to higher skilled hospital positions is another contributing factor. Thus, in describing various categories of jobs in the "secondary" labor market, Doeringer and Piore cite "menial jobs in hospitals" as typical of jobs in "secondary" internal labor markets. These markets are defined as those which "do possess formal internal structures, but they tend to have many entry ports, short mobility clusters, and the work is generally low paying, unpleasant or both."[2/]

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[1] Formal Occupational Training of Adult Workers, *op. cit.*, Table 11.

[2] *Phase I Report*, Table III-11.

On the positive side, work associated with care of the ailing -- even if routine and unpleasant, at times -- has traditionally been considered more prestigious than similar types of duties elsewhere. Performance of these duties in hospitals or similar facilities, by the same token, requires a greater standard of discipline and training. Moreover, although unionization is still of limited scope in this occupation, it is likely that institutionalized personnel policies and procedures provide somewhat more, in the way of employee safeguards and fringe benefits, than is available to workers in other lower level service occupations, such as domestics, cleaners and food service workers.

These considerations -- many of which cannot be readily quantified -- probably account in combination for the fact that various surveys of

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[1/] Studs Terkel, Working, Pantheon Books, New York, 1972, p. 471.

[2/] Peter B. Doeringer and Michael J. Piore, Internal Labor Markets and Manpower Analysis, (Lexington: D.C. Heath and Co., 1971), p. 167.

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occupational prestige rank hospital attendants substantially higher than most other lower-level jobs. Thus, Paul Siegal, in his systematic compilation of prestige scores for all Census occupations, ranked hospital attendants in the sixth decile of the labor force, whereas nearly all of the other lower level occupations in our Group IV and V categories fell into the lowest three or four deciles of the labor force, in terms of prestige.[1]

Employment and Labor Supply Trends

Hospital attendants have experienced the most rapid growth rates of any of the lower level occupations in our study. Based on decennial Census data, the number of hospital attendants in the experienced civilian labor force has approximately doubled in each decade since 1940, when the occupation was first separately enumerated -- growing from 102,000 in 1940 and 216,000 in 1950, to 408,000 in 1960 and to 752,000 in the most recent 1970 Census.[2] For the decade of the 1960's, BLS estimates, based on somewhat different definitions and source data, indicate an increase of 84% in employment of hospital attendants, as contrasted to an overall employment increase of 19%.

The major factor in this rapid growth during the 1960's has been the overall expansion of employment in the medical and health services industry, as a result of the increasing hospitalization and health insurance coverage of the population, including the Medicare and Medicaid programs; of increases in real per capita income and advances in medical technology. In addition, hospital attendants have increased as a proportion of total employment within the medical and health industry, from 15.2% in 1960 to 17.6% in 1970, for reasons reviewed in detail below.

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[1] Paul M. Siegal, "Prestige in the American Occupation Structure," *op. cit.*, Table 5.

[2] Data for 1940 and 1950 from Kaplan and Casey, *op. cit.*, Table 6. Data for 1960 and 1970 from the decennial Censuses, U.S. Summary Volume, *Detailed Characteristics*. Changes in Census occupational classifications have had a limited effect upon intercensal comparability for this occupation.

This employment growth was accompanied by the following changes in the characteristics of the hospital attendants' work force:

- The proportion of women in hospital attendants jobs rose from 73.8% in 1960 to 84.6% in 1970.

- The overall percentage of non-whites in hospital attendants jobs rose slightly from 25.2% to 26.6%, and continued to be about two and a half times as great as their proportion in the labor force as a whole. This resulted from an increase in the proportion of non-white women, among hospital attendants, and from a reduction in the proportion of non-white men in this occupation.

- Among male hospital attendants, there was a marked shift from employment of men 25 years and over, to employment of younger men, aged 16-24 (predominantly white) resulting in a reduction in the median age of male hospital attendants from 37.3 years to 32.3 years. The median age of female hospital attendants was higher than for men in both 1960 and 1970 and declined only slightly -- from 39.7 years to 38.6 years.

- The median educational level of employed hospital attendants rose substantially over the decade -- from 10.6 years to 12.2 years of schooling for men and from 10.8 years to 11.8 years for women.

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These trends, in summary, suggest that the primary source of recruits for this growing occupation in the 1960's consisted of both younger and more mature women workers, and included both recent entrants into the labor force as well as those who had "moved up" from other lower status occupations. Among the latter, non-white women probably contributed a greater-than-proportionate share. In the case of men hospital attendants, however, the evidence suggests a significant net out-movement of adult male workers, particularly non-whites, from this low wage occupation and their replacement by recent male entrants into the labor force as well as women. Thus, the relatively large increase in the female labor force during the 1960's, as well as of youth, facilitated recruitment for this occupation.

These labor supply sources appear to have been generally adequate to meet employer recruitment needs. A number of health manpower studies conducted during the past decade -- although noting problems of high turnover rates among hospital attendants -- generally have not indicated any major recruitment problems for low-skilled personnel as contrasted to severe shortages of registered nurses and licensed practical nurses. Confirming evidence is provided by the relatively large increases in wage rates for the latter categories of personnel, whereas wage rates for hospital attendants experienced an average rate of increase over the decade, despite the sharp growth in their employment. Thus, between 1959 and 1969, annual earnings of female hospital attendants rose by 56%, as compared to 90% for licensed practical nurses and 72% for registered nurses.

These trends, in turn, tend to support the inferences by Rosenthal and Sommers that the relatively sharper increases in employment of hospital

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attendants than of trained nurses between 1960 and 1970 resulted from a reallocation of some duties, previously performed by nurses, to nurses' aides and other hospital attendants, in view of the widening wage differential between the two categories of personnel and the increased availability of untrained females and youth.

Labor Market Factors Affecting Relative Employment and Wages of Hospital Attendants

The inferences, noted above, concerning the relationship between relative employment and relative earnings of hospital attendants -- on the one hand -- and the supply of workers for health attendants' jobs have been tested by use of a number of econometric models. Although precise variables used varied in each test, the general approach in all was based on the premise that, as in other "segmented" labor markets, the supply of workers available for work as hospital attendants was drawn disproportionately from certain population groups, e.g., non-whites, youth, and women with limited education or specialized training. Such individuals have often had a restricted choice of working in a specific lower level occupation, such as hospital attendants (provided such jobs are available), of working in other lower-level occupations for which they qualify or of not working at all. Thus, to the extent that the employment of hospital attendants is a function of labor supply conditions and relative wages, employment would be expected to be higher -- relative to the total size of the hospital or health services industry -- where the supply of such workers is greater and where alternative job opportunities (or non-employment sources of income) are less attractive.

The empirical data base for these analyses, as for most of the other econometric models in this study, consisted of 1970 Census data for the NPA sample of over 60 SMSA's with populations of 250,000 or more. The major findings are summarized below.

1. Relative employment -- Rosenthal and Sommers define relative employment of female hospital attendants (REL EMP) as the ratio of hospital attendants employed in each SMSA to total employment in lower-level occupations in that SMSA, i.e., those classified in Groups IV and V in our occupational status grouping. They postulate that this varies both as a function of total hospital employment in the area (HOSP) and in relation to certain other specified labor market characteristics of each SMSA. The latter include: (1) percentage of females in the area's labor force (FEM); (2) percentage of non-whites and Spanish-origin persons in the area's labor force (NW); (3) median educational level of women in the labor force (EDUC); (4) the median earnings of hospital attendants in 1969, employed 50-52 weeks, as a ratio to a nationally-weighted average of earnings of all Group IV and Group V employed workers in that SMSA (REL WAGE); (5) the unemployment rate for women in the SMSA (UNEMP); and (6) the percent increase of total hospital employment relative to total employment growth in the SMSA between 1960 and 1970 (GROWTH). The results are shown below:

$$\begin{aligned}\text{REL EMP} = {} & \underset{*-2.7020)}{0.2643} + \underset{(2.4581)}{0.3640\ \text{HOSP}^{**}} - \underset{(-1.5926)}{0.0478\text{NW}^{*}} + \underset{(2.5600)}{0.2304\text{FEM}^{**}} + \\ & \underset{(2.1149)}{0.0142\text{EDUC}^{**}} + \underset{(1.7051)}{0.0343\text{REL WAGE}^{**}} + \underset{(3.4486)}{0.5889\text{UNEMP}^{**}} \\ & - \underset{(-0.5045)}{0.0006\ \text{GROWTH}}\end{aligned}$$

$\bar{R}^2 = .233$

** significant at .95
* significant at .90

Although the total explained variation in relative employment of female hospital attendants was low, it is noteworthy that all variables were significant except for the growth variable. The signs of all the significant variables were also in the expected direction, with the exception of the "non-white" variable, where a positive relationship had been hypothesized. The implications to be drawn are that -- apart from the obvious relationship to total hospital employment in the area -- more women workers are likely to be employed as hospital attendants, rather than in other lower level jobs, in areas where female unemployment rates are higher, where women constitute a larger share of the total labor force, where their educational level is above average, and where the wages of hospital attendants relative to other low level occupations is higher. Their relative employment as hospital attendants is, however, likely to be lower in areas with a higher percentage of non-whites in the labor force -- possibly because of a relatively larger aggregate employment in low level jobs in such areas, resulting from "crowding" of black workers in these jobs (e.g., domestics).

Attempts to apply a similar model separately to male hospital attendants proved unscussessful.

Relative Wages -- A similar effort was made to determine the extent to which relative wages of hospital attendants, as compared to those of other Group IV and V workers (as approximated by the Census data on median earnings of full-year workers in 1969) were influenced by certain labor market characteristics. Separate equations, in parallel forms, for women and men hospital attendants explained about one-fifth of the variation in each case. (A modified form, in the case of males, raised the $\bar{R}^2$ to about

.35.) For women hospital attendants, full-year wages were found to be significantly *lower* (relative to those in other Group IV/V occupations) in areas with higher proportions of women in the labor force and to be significantly *higher* in areas with greater proportions of "non-whites". (The latter finding is attributed by Rosenthal and Sommers to the likelihood that as the proportion of non-white women in an area's labor force increases, this is likely to exert a greater depressing influence on other, less desirable, low-level jobs in which they are "crowded", than it does upon hospital attendants, thus raising the relative wage for the latter.) In the case of men hospital attendants, relative earnings were found to be significantly *lower* in areas where greater proportions of youth, aged 16-24, were in the labor force, and significantly *higher* in areas with higher percentages of non-whites and where public assistance payments to families were greater. Variables such as educational level were found to be insignificant in both equations, as was the level of public assistance in the case of women hospital attendants. Also, the relative proportion of women in the labor force had no significant effect on relative wages of men hospital attendants.

In addition to the above findings, based on the specific models described above, additional insights were derived from the more generalized low level labor force models described in Chapter IV. Most of the empirical tests of these models failed to prove applicable to the hospital attendants' occupation, partly -- we believe -- because of the higher status of this occupation, as compared to others included in this comparative analysis. However, this approach did yield significant results in explaining interarea differences in the relative concentration of younger women, aged 16-24 years, in hospital attendants jobs. We found that "youth concentration" among female hospital attendants was significantly higher in areas where relative wages of hospital attendants were higher (based on a broadly standardized area occupational wage measure) and where median annual earnings of full-year black women workers in 1969 more closely approximated those of white women. Youth concentration was significantly lower, as might be expected, in areas where hospital attendant employment had grown less rapidly and also in areas with higher concentration of Spanish-origin women workers. These variables in combination explained about one-third of the variance in the youth concentration variable ($\bar{R}^2 = .329$).

Any generalizations based on the above findings must be carefully qualified both because of the generally low $\bar{R}^2$'s, as noted, and because the coefficients of elasticity for many of the variables identified as significant were also relatively low. Nevertheless, one general observation is that both relative employment and wages have been found to be sensitive to some degree to relevant demographic labor supply variables, as well as to other factors such as area unemployment rates. The findings tend to confirm the hypothesis that the large inflow of women into the labor force during the 1960's was a key factor facilitating the relative rapid growth in hospital attendants' employment as compared to other skilled health occupations, while tending to check the relative growth in wages for this occupation. The empirical evidence also tends to suggest that younger workers, mainly white, were substitutes for minority group workers in this occupation and were more likely to be employed in these jobs in areas where the proportion of minority workers was low and/or where earnings opportunities for minority workers were more favorable.

Employment Outlook

The longer-range employment outlook for hospital attendants continues to be highly favorable. The BLS, in its most recent projections has estimated an annual employment growth rate of 3.6% for hospital attendants, more than twice the projected growth rate for total employment under full employment conditions. Enactment of national health insurance legislation would further enhance the prospects for a rapid increase in requirements for hospital attendants, as well as for other health service occupations.

The projected shifts in composition of the labor force over this period suggest, however, that hospitals and similar institutions may experience more difficulty in recruitment of personnel for hospital attendants' jobs, under existing relative wages, than they did during the past decade. One important consideration is a projected slowdown in the rate of labor force growth for women workers, who now comprise 85% of the labor force in this occupation. The BLS labor force projections indicate that women will account for only 46% of the increase in labor force between 1970 and 1985, as compared with 60% of the growth over the 1960-70 decade. Moreover, as a result of reduced marriage and birth rates, a greater proportion of women workers will have had sustained periods of work experience and -- to this extent -- be less amenable to entering or remaining in low-skilled and, essentially, dead-end jobs, such as those of hospital attendants.

A further consideration is the projected reduction in the proportion of younger workers of both sexes, who will be entering the labor force in the 1980's. As in other lower level occupations, younger men as well as women, were an important labor supply source for hospital attendants' jobs during the past decade.

One favorable aspect of the labor supply outlook for this occupation is the fact that it appears to enjoy more prestige than most other lower level jobs; hence, in spite of its low wage structure, it was successful in attracting an increased proportion of non-white women, in contrast to the reduction in non-white ratios experienced in most other lower-level (Group IV/V) service occupations. It is likely, however, that the younger non-white women will be less content to remain in this occupation in the absence of significant upgrading opportunities.

Although a definitive projection of the combined impact of these demographic and social trends upon the future employment and wages of hospital attendants is not possible, Rosenthal and Sommers have applied the coefficients of elasticity, derived from their relative wage model for hospital attendants, to illustrate the partial effect of these trends -- under an implicit assumption of an inelastic demand function for this occupation. This approach resulted in a projected increase in the "relative wage" for hospital attendants of about 7% for women and 10% for men hospital attendants, in relation to wages of workers in all lower level occupations (Group IV and V).

A similar set of estimates was derived by use of the coefficients developed from the relative employment equation for female hospital attendants as well as the projected wage relative to develop a supply oriented projection of future employment for hospital attendants. Based on this procedure, Rosenthal and Sommers derived a potential "shortage" of 164,000 hospital attendants, or 12 percent, in relation to the BLS projected requirement for hospital attendants in 1985. In turn, this would imply a further increase in relative wages of female hospital attendants of 35%, above that projected based upon relative supply trends alone.

The procedures followed above cannot be regarded as providing a definitive projection of future supply and demand conditions and of relative wage trends in this occupation since the econometric models used did not result in a fully integrated system of supply and demand equations. Of equal importance, they did not directly take into account the implications of the prospective growth in supply of trained personnel, qualified as registered nurses and licensed practical nurses. To the extent that a "substitution" of hospital attendants for these better qualified personnel occurred in the 1960's, a reverse process may be anticipated in the coming decade.

While recognizing the limitations of the technical data base, Rosenthal and Sommers conclude that "the supply of hospital attendants in 1985...may be insufficient to meet employment requirements as projected by BLS unless adjustments are made in the factors affecting supply." The most probable adjustments, in addition to an increase in relative wages for hospital attendants, are: (1) increased employment of LPN's and RN's, and (2) various measures to upgrade the status and working conditions and increased upgrading opportunities, which would provide credit for experience as hospital attendants in advancement to more technical health service occupations.

Chapter VII

The Outlook for Lower Level Employment: An Assessment and Some Policy Implications

A. Major Findings

The point of departure of the present study was the premise that there exists a hierarchy of jobs in our society, based on the nature of the work performed, the rewards for this work, the conditions of work, and the prestige associated with the occupation. The precise delineation of this hierarchy varies somewhat depending upon the choice of criteria. Some of the criteria, such as relative wages or income, have been more amenable to quantitative measurement and have also seemed most pertinent to the study of such problems as poverty and inequality of income distributions. Other criteria, such as working conditions -- although clearly relevant in any assessment of occupational labor supply -- are far more difficult to apply in any simple metric and are more likely to be affected by the varying preferences or value systems of individual workers.

For our purposes, broad occupational status groups were defined in Chapter I, based on the proportion of white workers with at least 12 years of education in each occupation using data for a specific age group, those 25-34 years in 1960. Our premise was simple: Within any age/sex group, employers had generally given preference to white over nonwhite workers (at least in 1960 and prior years), and to better-educated over less-educated workers. Workers with these preferred characteristics had a broader choice of jobs, as illustrated -- for example -- by their substantially lower unemployment rates. Hence, the differential concentration of such workers in various occupations provided a reasonable indicator of their collective

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occupational preference scale, reflecting -- in Adam Smith's words -- the "sum of the advantages and disadvantages" of various kinds of work.

Based on this occupational preference scale, the lowest-level "Group V" occupations were found to consist predominantly of laborers and of certain of the less-skilled personal service occupations, such as domestics, cleaning service workers, cooks and kitchen workers and laundry or dry cleaning operatives. Directly above them, in the occupational hierarchy, is a much larger group, including all but the most skilled and/or highest paid blue collar occupations; certain semi-skilled personal service occupations with somewhat better pay and/or working conditions than those in the Group V category (e.g., waiters, housekeepers, hospital attendants), and certain low-skilled clerical jobs, such as messengers and shipping clerks.

The Group V jobs, as well as many in the lower level of the Group IV category, all embody -- in varying degrees -- a combination of factors which make jobs undesirable to most workers: low pay, little skill, little challenge and little or no upward mobility. They are, in other words, the "jobs of last resort" which workers take in the absence of other preferred ways of earning a livelihood. Nevertheless, workers engaged in these jobs are contributing to some of the most basic and essential activities in our economy -- harvesting and processing of our food supplies, provision of clothing and shelter, care for the sick and aged, and performance of a wide variety of other production and "housekeeping" functions. Moreover, although technological progress has steadily reduced requirements for unskilled labor in most goods-producing industries, there have been growing requirments for "low-level" manpower in the expanding service sector of the economy, including such occupations as food service workers, hospital attendants and cleaning and janitorial services. Labor requirements for these service activities have proved less amenable to rationalization through substitution of machines or other devices, or through shifts in locus of production, than those in the goods producing sector.

From this point of departure, we examined in Chapter II the ways in which the American economy has met these low level manpower needs at various stages of its evolution. With limited exceptions, employers had experienced little difficulty in recruiting an adequate supply of workers for most of these jobs because of the existence of a large pool of workers who had few other effective choices. Included in this pool were disproportionate numbers of black workers, of recent immigrants and of migrants from farm to city. These groups of workers shared, in varying degrees, common handicaps of limited education, limited skills and limited labor market information. Particularly for the black workers, these handicaps were reinforced by various forms of institutionalized discrimination. A supplementary source of adult labor supply for these jobs consisted, at all times, of those indigenous white workers who because of various personal or social handicaps, had also been confined to the lowest rungs of the occupational ladder.

The roles of both youth and of women workers also deserve special attention in any review of sources of low level labor supply. Children and women had historically played an important role in providing the unskilled labor for routine personal service jobs, for light manufacturing industries, such as textiles and apparel; and for unpaid work in family farms and businesses. Younger workers of both sexes, as well as more mature women

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workers, shared common labor market disadvantages due to their more limited work experience and more uncertain job tenure, as compared to adult men workers. Women workers, in addition, had been further limited in their job choices by their more restricted mobility and by discriminatory employment patterns, which had largely confined them to "female-type" jobs, typically in helping or auxiliary roles.

The process of urbanization and concomitant social and economic trends served to modify these occupational patterns, to a considerable degree. An increasingly sophisticated economy demanded -- and also made possible -- a progressive increase in the length of schooling. An increasing proportion of youth of both sexes, particularly those from more advantaged backgrounds, were able to substitute formal education and professional training for earlier traditional on-the-job methods of acquiring vocational skills, thus enabling them to enter directly into the growing ranks of the higher status white collar occupations. Child labor and compulsory school attendance laws further limited the scope of "low level" youth employment, notably in factory work and in certain hazardous occupations, while the steady decline in agricultural employment resulted in sharp reductions in their utilization in the farm labor force.

Whereas participation of youth in full-time jobs had thus experienced a steady decline, many of these same forces had served to broaden the opportunities for employment of women, particularly in the expanding white collar and service occupations. Women workers in these occupations had, however, been consistently relegated to the less skilled and lower wage jobs in these occupations due -- at least in part -- to systematic discrimination in hiring and promotional opportunities. Thus, whereas women workers held a roughly proportionate share of all Group IV and V jobs in 1960, they were heavily concentrated in the poorest paid of these occupations, i.e., in the low wage personal service occupations and in semi-skilled jobs in the apparel and textile industries.

Our more detailed review of experience during the decade of the 1960's in Chapter III revealed major changes in the pattern of labor supply for low level jobs. A favorable labor market climate, in conjunction with such influences as increased education and the momentum of private and public equal employment opportunity programs, had made possible a substantial broadening in job opportunities for non-white workers, particularly for those with above-average educational attainment. The result was a net reduction of over 600,000, or more than one-fifth, in the number of black workers in the lowest level, Group V, occupations. Despite this exodus, the overall size of the Group V labor force actually increased slightly between 1960 and 1970, mainly as a result of a net inflow of over 800,000 younger white workers, aged 16-24 years -- a direct consequence of the entry into working age of large numbers of the post-World War II "baby boom" generation. Increased labor force participation among adult white women workers, including many with limited education or work experience, provided an additional source of recruits for these jobs. In both categories, a substantial proportion of these newer entrants consisted of part-time workers -- students or housewives -- many of whom engaged in these jobs on a temporary or transitional basis. These labor supply sources were supplemented by an increased inflow of legal as well as illegal immigrants, predominantly drawn from nearby Latin American countries and of Puerto Ricans moving to New York City and other Eastern Seaboard cities.

In the second phase of our study, we attempted, by a variety of research approaches, to assess the labor market and wage structure implications of these trends and -- in turn -- to examine the probable consequences of prospective changes in overall labor force structure and growth for the future supply of workers in lower-level occupations. In Chapter IV, recent trends in relative occupational wages, as well as inter-area wage variations for selected lower-level occupations, were analyzed in an attempt to measure the sensitivity of the occupational wage structure to labor supply variables. We found, not unexpectedly, that trends in the structure of wage differentials were not readily amenable to "explanation" by use of available empirical data. The evidence indicated considerable stability in the overall occupational wage structure during the decade of the 1960's. Nevertheless, the analysis did find that relative wage trends and differentials in some occupations were sensitive, in varying degrees, to such labor supply factors as: (1) differences in the proportions of black workers in certain lower-level occupations; (2) differences in relative labor market opportunities for black workers; (3) differences in availability of youth or part-time workers for these jobs; (4) differences in overall unemployment rates; and (5) differences in availability of alternative income sources. These findings and related studies do suggest that the apparent general stability in occupational wage structures during the 1960's was due -- in part -- to the ability of employers to substitute new or augmented sources of low level labor supply (e.g., youth

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and women part-time workers) for declining "low level" manpower sources, such as upwardly mobile black workers.

From this perspective, we then attempted, in Chapter V, to assess the quantitative implications of prospective changes in overall labor force composition for labor supply, by broad occupational groups, in relation to projections of labor demand (or employment) by occupation. Changes in overall labor force growth and composition, for a period of up to 15 years in the future, are more predictable than other longer-range socio-economic trends, since they derive in large part from such demographic realities as recent trends in birth rates and the normal processes of labor force attrition. Other related labor force trends, such as the growth of educational attainment of the adult labor force, can also be projected with some confidence for a decade or more ahead. These projections, combined with extrapolations of recent (1960-70) trends in the broad occupational distribution of the various socio-demographic components of the labor force, provided the basis for estimates of the "expected" distribution of the labor force by broad occupational group. The major finding was that, in contrast to sharp projected increases in availability of workers for higher status (predominantly white collar) jobs between 1970 and 1985, we can expect substantial reductions in the proportion of workers who will be available for the lower level Group IV and V occupations. This results from a confluence of forces specified in our projection model -- but, most importantly, from the projected slowdown in growth in the number of younger workers, who had accounted for a large and growing segment of the "low level" labor force in the decade of the 1960's.

this occupation, and because it is a "one-industry" occupation. For both reasons, the supply and demand of workers for this occupation is more amenable to structured econometric analysis. Such analyses, based on cross-sectional data, confirmed that both supply and demand for domestics were highly elastic. As a result, increased education and expanding employment opportunities for black women (the major labor supply source in recent decades), as well as increases in alternative income sources such as AFDC, were identified as important factors contributing to the sharp downtrend in domestic employment, concurrent with a moderate increase in the relative wages for domestic work. The recent establishment of a minimum wage for domestics, in combination with the projected reduction in overall supply of low-level labor, is expected to result in a continued employment downtrend, under conditions of high aggregate labor demand. Prospects for augmenting the labor supply of "career" domestics through increased training and upgrading appear to be limited, based on experience of recent pilot projects. Augmentation of supply through increased immigration -- including both legal and illegal aliens -- has provided an additional source of labor for this occupation in some areas; however, this has been transitory to a large extent, in view of the high propensity of most such immigrants to move to better paid, higher-status jobs as soon as they acquire the needed language or vocational skills.

· Apparel industry operatives provide a prototype of the labor market forces at work in a low-wage female light manufacturing occupation. The geographical mobility of the industry, facilitated by advances in transportation and communication, has been a dominant factor affecting its adjustment

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to changing labor market conditions. The stoppage of mass immigration, the upward mobility of the ethnic groups who had initially staffed this occupation and the establishment of strong apparel worker unions in the major production centers appear to have been key factors setting in motion a geographic redistribution of apparel industry employment in recent decades. Intensified import competition, particularly from low wage countries in Eastern Asia, has had the effect of arresting employment growth in this industry in the past decade and of accelerating its geographical relocation from North to South, particularly in the less-style oriented branches of the industry. In the South, the attempts of employers to utilize available reserves of low-wage female labor were reflected in our findings that apparel industry employment grew most rapidly in low-wage areas with high unemployment, and where AFDC payments were low relative to apparel worker earnings. In addition, the Southern industry had significantly increased its employment of black women in operative jobs, probably reflecting -- in large part -- limitations in available labor reserves of low wage white female labor in apparel factory jobs. Based on this recent experience, we concluded that labor supply constraints are likely to result in continued movements of the industry in search of remaining areas of low wage female labor and in increased utilization of disadvantaged minority groups where available. These tendencies may be checked, however,by such factors as establishment of national minimum welfare payments or income "floors", by increased unionization and by a more rapid overall economic development in Southern production regions. Under the latter contingencies, significant increases in relative wages for apparel operatives would be required to attract the needed labor supply, particularly in the South.

· Construction laborers provide a good illustration of a low-level male occupation which has experienced major shifts in its labor supply sources during the past decade. Between 1960 and 1973, the proportion of non-whites among construction laborers fell from 31% to 22%, while the proportion of (predominantly white) younger workers, aged 16-24, employed as construction laborers, rose from 26% to nearly 44%. It is probable that in this occupation the large inflow of younger men into the labor force during the past decade -- and the fact that construction laborer hourly wage rates compare favorably to those in many other low status jobs -- were major factors contributing to the stability of the skilled-unskilled construction wage differential during the 1960's, in contrast to the longer-term trend towards a narrowing of this differential in earlier decades. This interpretation is reinforced by our cross-sectional analyses of inter-area differences in relative earnings of year-round construction laborers, which indicated that these differences were significantly influenced by such factors as inter-area differences in alternative job opportunities for black workers and in availability of youth for construction laborer jobs, as well as by other identifiable wage relevant variables, such as unemployment rates and extent of unionization. These findings, in conjunction with projections of a substantial increase in demand for construction laborers by 1985, point to the likelihood of a considerably tighter labor market for construction laborers than that experienced in the second half of the past decade. One possible outcome is a resumption of the longer-term towards narrowing of the skilled-unskilled wage differential for construction workers -- particularly in view of the relatively inelastic demand function for this category of labor. Construction laborer jobs could be made more attractive by efforts to decasualize the construction laborer work force and to provide increased upgrading opportunities. A tighter labor supply is also likely to foster accelerated introduction of labor-saving equipment and construction methods, particularly in the South, which currently utilizes larger proportions of contruction laborers than in other regions.

- Hospital attendants, in a number of respects, offer a significant contrast to the three preceding "lower level" occupations. Unlike many other low-skilled occupations, they experienced a sharp and sustained employment increase in the past several decades, growing by 85% in the 1960-70 decade alone. The principal sources of additional labor supply for these jobs consisted of women workers (who increased their share of hospital attendant jobs from 74% in 1960 to 85% in 1970) and of younger workers of both sexes. This sharp employment growth was accomplished, moreover, with only moderate increases in wage rates, as compared to those for such related occupations as licensed practical nurses and registered nurses. It is clear that the supply of hospital attendants was more adequate in the 1960's than in other more skilled health care occupations. Some confirmation of these interpretations was provided by cross-sectional models, indicating that relative wages of hospital attendants, as compared to those in all lower-level jobs, were lower in areas with larger proportions of women in the labor force and with larger proportions of youth. Hence, the large inflow of both women and youth into the labor force, and the preference for this occupation as compared to more "menial"-type jobs, were key factors facilitating recruitment during the 1960's. By the same token, the projected slowdown in entry of both women and youth into the labor force, in combination with an expected continued growth in demand for hospital attendants, is expected to cause a reversal of this experience in the coming ten-year period. Adjustments to a tighter labor supply of hospital attendants are expected to include significant increases in relative wages, combined with measures to upgrade the status of the occupation. In addition, there may be some capability of reducing the proportion of hospital attendants needed, as compared to nurses, thus reversing the trend observed in the 1960-70 decade, in view of the projected sharp growth in availability of professionally-trained personnel.

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To summarize, the indications derived both from our broader statistical projections and from a closer examination of selected lower-level occupations, point to the likelihood that we are entering an era which will witness a significant shift in the balance of labor supply and labor demand among major categories of occupations. Although our society will continue to "require" the services of large numbers of workers in low level jobs, basic changes in the demographic structure and rate of growth of the labor force -- combined with a continued thrust to a more egalitarian welfare oriented society -- is likely to progressively constrain the supply of workers who will readily accept such jobs, in the absence of significant changes in their wages and working conditions.

Recent experience also suggests some of the ways in which the labor market is likely to accommodate these altered conditions, if and where they develop. At the upper end of the job spectrum, as the supply of better-educated workers becomes more plentiful, employers are likely to respond by reducing relative wages and by raising selection standards. Conversely, as some lower level jobs become harder to fill, a number of options will be open, depending in part upon the elasticity of demand for such workers. In some occupations, such as domestics, we can expect a further employment decline: an increasing proportion of families will be obliged to seek substitutes for the services of paid domestics, either through "product" substitution, such as increased use of commercial services, or by simply doing more of their own household chores. Conversely, in the case of occupations such as construction laborers and hospital attendants, the more probable longer-range outcome is for an increase in relative wages, accompanied by other efforts to make these jobs somewhat more attractive. In the case of geographically mobile low wage industries, such as apparel manufacturing, adjustment might also take the form of continued shifts in the locus of production, either to states or regions containing residual reserves of low-wage labor or through increased reliance upon imports from low wage countries.

B. Policy Implications

If manpower projections are to be used as a guide to decision making, they should meet certain standards of reliability and credibility. It is reasonable to ask: What is the reliability of the projections of labor demand in various occupations, given the large number of assumptions and economic variables which must enter into these projections? How much confidence, moreover, can we place upon any attempts to forecast the future availability of workers by occupation, given the limited knowledge of the forces influencing occupational mobility and occupational choices?

If these projections are treated as forecasts for a specific year, such as 1985, the answer clearly is: "very little". One need simply review the actual fluctuations of unemployment rates in recent decades to recognize that a projection based on a full employment peacetime economy -- and one with relative price stability -- does not correspond with actual experience in all but a few years at best. It seems particularly unreal at a time when the unemployment rate, in May 1975, exceeded 9% and when some forecasts anticipate that it may remain above 6% for the balance of the decade.

If these projections are treated as contingent indicators of labor market trends which may emerge in the coming decade under conditions of high aggregate labor demand, we believe that they can be given considerably more weight. The most reliable parameter in our projections is the predictable sharp reduction in the number and proportion of youth and younger adults in the labor force of the 1980's -- the population group which provided the greatest increment of manpower for lower-level jobs in the past decade. (The labor market strains associated with this large influx during the past decade were in fact foreseen by Labor Department studies released at the beginning of the decade[1] and to some degree, may have influenced policymakers in initiation of an "active manpower policy" for the United States, as illustrated by such programs as MDTA and various elements of the Economic Opportunity Act of 1964.) Concurrent trends -- such as the increase in occupational aspirations of minority groups, of women and more generally,

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[1] U.S. Department of Labor, Manpower Challenge of the 1960's.

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of all youth coming from lower income or disadvantaged backgrounds -- have acquired sufficient momentum that they can and should be considered as irreversible forces in our society. The latter trends have, moreover, been treated rather conservatively in our manpower projection model, partly because they could not all be quantified. Furthermore, we made no effort to allow for the implications of possible future changes in income maintenance policies, such as establishment of some form of national minimum welfare payment or guaranteed income. For these reasons, these projections may well understate, rather than overstate, the potential need for future labor market adjustments in a high-employment economy.

The outlook, as we see it, points to the emergence of significant labor market strains, which can pose serious problems for some categories of workers and employers, as well as for those concerned with the efficient functioning of the labor market. At the same time, it can create a climate conducive to both private and public initiatives for reducing and/or upgrading low-level jobs in our society.

The heart of the dilemma which may be facing us is the sharp contrast between the limited demands and limited rewards of many jobs, as presently constituted, and the abilities, skills and aspirations of the members of our labor force. To the extent that we approach such major national goals as sustained full employment and equal access to jobs, irrespective of race, sex or social origin, the supply of workers available for the least desirable jobs will decline. The prospective decline in the number of youthful entrants into the labor force will further reduce the supply of workers for these jobs, particularly if the recent sharp downtrend in marriage and birth rates continues.

Some of the problems associated with these trends are already visible; others can be expected to become evident as we move into the decade of the 1980's:

- The better educated young workers who have recently entered the labor market, or who will be entering it in the coming decade, can expect increased competition in seeking preferred jobs depending upon their area of specialized training and may be forced to stay in or accept jobs not utilizing their education. Recent surveys have indicated that over one-third of American workers consider that they are already educationally "overqualified" for their jobs and that these workers have significantly lower-levels of job satisfaction than other workers.[1/] An acceleration of these trends, in turn, can be expected to intensify problems associated with poor worker morale.

- Minority workers and women, seeking a fair share of the preferred jobs, face increased competition from "majority" worker categories, with a consequent danger of increased confrontations on issues relating to equal employment opportunity. (These issues become even more critical in periods of substantial unemployment such as the present, since such workers -- because of lower seniority -- are often the first to be laid off.)

- Although employers will have a greater choice of applicants in many professional, managerial and other higher-status occupational fields, they may be faced with high job vacancy and turnover rates --

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[1/] Survey of Working Conditions, University of Michigan, Survey Research Center, November 1970, pp. 407-409.

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and with related problems of poor worker morale -- in low-skilled, low-status jobs.

- Public manpower agencies and employment services, whose primary clientele in recent years (prior to the current recession) consisted of youth and "disadvantaged" workers, could be faced with conflicting demands for their services on the part of better-educated workers seeking placement in higher status jobs, and of employers, who -- on the other hand -- may mainly need assistance in filling their lower level jobs.

- Institutions of higher education, already beset by serious financial difficulties, will be forced to reevaluate their educational programs and their enrollment prospects in the light of the altered labor market outlook for college-trained personnel.

It is possible, however, to view the projected labor force trends from a much more positive perspective. For example, the declining flow of new entrants into the labor force in the 1980's can -- of itself -- aid in reducing unemployment rates, since youthful workers, as well as adult married women, contribute disproportionately to the overall volume of frictional unemployment.[1/] More specifically, a reduced supply of workers for lower-level jobs can, as suggested in our case study analyses, set in motion a number of labor market adjustments which most observers would consider desirable.

In industries or occupations where the demand for low-status labor is wage-elastic (such as domestic service) a more restricted labor supply will

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1/ Economic Report of the President, 1975, pp. 88-89.

create an inducement for substitution of capital or of alternative products or services, hence, reducing the requirement for this category of labor. A considerable potential for such economies in utilization of low-level labor is present in many industries, based on existing methods and technologies.

· In occupations where demand is much less elastic in the short run, as is probably the case in such diverse occupations as construction laborers, hospital attendants, and hired farmworkers, the outlook is for a significant narrowing of wage differentials, as compared to more skilled occupations. Many workers in these occupations now receive annual earnings which do not meet socially-accepted minimums; hence, this trend is also in a desirable direction.

· Finally, in a tight labor market situation, a combination of employer self-interest and increased union pressures can make possible a number of other initiatives to raise the status of workers in low-level jobs, including measures to increase job security, to improve working conditions, to facilitate worker upgrading and to provide more flexible work schedules.

Some of the adjustments described above can be expected to develop as part of the normal process of decision making by individual employers and workers in a free labor market. Other changes, particularly those involving significant realignments of wage structures and of personnel policies, are likely to be considerably slower, because of information lags, institutional obstacles or simple reluctance of employers and/or worker groups to change established practices. This suggests the desirability of a more active role by policy makers in government, business and labor in creating a climate which will accelerate adoption of desirable changes.

NPA Policy Recommendations

From this point of departure, the National Planning Association established, in late 1973, a Joint Committee on "Lower Level" Jobs, chaired by Dr. Howard Bowen, and including in its membership representatives of business, labor, agriculture and the academic community. The interim findings of the present study, as well as a number of related reports, provided a frame of reference for this assessment. Its report was released in Feburary 1975, under the signature of 79 members of the NPA Board of Trustees and committees.[1] Its major recommendations were centered around a strategy which "should continue to encourage the elimination of these jobs were possible, through technological change, should seek to improve continuing low-status jobs by restructuring them, and should try to insure that no segment of society is unfairly relegated to the undesirable work which remains."[2] More specifically, the report recommended the following:

1. Restructuring of jobs, including (a) greater diffusion of responsibility and control among individual workers or teams of workers; (b) changes in work methods or work assignments in order to enlarge and diversify job contents; and (c) improvements of working conditions, including better work space, more flexible work schedules and extension of various amenities such as parking and lunch room facilities.

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[1] Upgrading Low-Level Employment: A Major National Challenge, National Planning Association, February 1975.

[2] Ibid., Chapter 5, p. 13.

2. Increased utilization of "transitory" labor sources, such as student workers, for low level jobs, through more flexible work scheduling, more flexible academic calendars and work-study arrangements. Other labor supply sources which might be recruited through more flexible work scheduling include housewives available for part-time work and retirees.

3. Improvement of minimum wage and of occupational health and safety safety standards, including their extension to any residual non-covered worker groups.

4. Training and job creation programs, particularly to assist the hard-to-employ in obtaining useful employment, as well as to assist in upgrading workers now in low-status jobs.

5. Continuing education programs to provide opportunities for upward mobility for mid-career workers stuck in low level jobs.

6. Strengthening of measures to end job discrimination because of race and sex, or because of lack of opportunity to acquire needed job skills.

In addition to the above recommendations, eight representatives of organized labor, included among the signators of the statement, strongly advocated the more rapid unionization of workers now employed at low-level jobs as holding "the greatest promise of upgrading their status quickly," and also proposed amendments to the National Labor Relations Act to provide full coverage of all workers, to expedite its procedures, and to provide effective penalties for unfair labor practices.

From the above summary, it will be evident that any broad policy strategy for dealing with low-level employment can encompass a very wide range of specific approaches. Some of these proposed measures, such as job restructuring, improvement of work standards and unionization are designed to make such jobs more attractive, hence, upgrading them from their present "low level" status. One other proposal -- for attracting additional "transitory" workers to these jobs -- addresses the potential labor supply problem more directly. Still other proposals in this list -- quite apart from their intrinsic desirability -- would however have the effect of further diminishing the sources of manpower for these jobs.

Two other options were considered by the NPA Committee but unanimously rejected. The first was a modification of the existing immigration laws to make possible more flexible year-to-year quotas geared to anticipated manpower needs by occupation. The second option was "to encourage some individuals to curtail or tailor their education to the needs of the labor market," through such approaches as encouraging acceptable educational alternatives to the conventional four-year college program for individuals without a strong interest or aptitude in academic courses and through reduced employer emphasis on formal academic credentials. Both options could have the effect of increasing labor supply for lower-level jobs. The reasons for their rejection as desirable options are assessed below:

Immigration Policy -- An expansion of quotas for admission of low-skilled workers, in the event of a developing shortage of workers for low-level jobs, was rejected because such a policy "would simply transfer the dirty work to a new, more disadvantaged group. In the long run, such a policy would exacerbate social problems by encouraging exploitation of low-wage workers and by adding numerous new individuals to the ranks of the disadvantaged who require society's support and by adding low-wage competition to the

U.S. work force."[1] The report notes, particularly, the problems associated with the increased flow of illegal immigrants who tend to be trapped in the worst jobs and are most subject to exploitation. It supports pending legislation designed to impose sanctions upon employers who knowingly hire such aliens as well as measures to strengthen the enforcement capabilities of the Immigration and Naturalization Service.

There is considerable difference in opinion concerning current immigration issues. Economists who approach this issue from the theoretical perspectives of the neo-classical tradition are likely to be opposed to any artificial barriers to free movement of either goods or labor across national borders. Employers who hire such workers clearly do so because it is profitable for them. And the immigrants themselves, although "exploited" in terms of American standards, have continued to flow here because of the sharp differential between United States wages and those in their native countries. The major initiatives for stricter enforcement of immigration rules have come from United States labor organizations and workers, particularly in industries where competition from such immigrant workers has tended to undermine labor standards and has impeded union organization. More generally, however, public authorities and community leaders have noted the adverse effects of illegal immigration upon economic and social conditions and welfare burdens in the affected communities and the linkage with organized crime.[2]

The social "overhead" costs associated with a policy of encouragement of immigration to meet low-level job needs have also been dramatically

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[1] Ibid.

[2] For one recent description of these impacts, see article by William Chapman, "Mexican Illegals Now Seek U.S. Cities," Washington Post, Dec. 9, 1973.

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illustrated by experiences of developed countries in Western European countries and elsewhere, during the past decade. The rapid post-World War II economic expansion of Western Europe had resulted in a depletion of the more readily available domestic labor reserves in these countries, particularly in view of the very low natural rates of labor force growth during this period -- a demographic pattern analogous to that projected for the United States in the 1980's. Economic growth, low unemployment rates and vocational training programs facilitated upward mobility of native-born workers in these countries, and -- in turn -- resulted in significant shortages of workers for the low skilled and undesirable jobs. To fill this gap, Western European countries resorted to increased importation of foreign workers from the Southern Mediterranean countries, the Balkans and North Africa. This policy took various forms, ranging from formal contractual arrangements with emigrant countries to liberal work permit policies for individual immigrants, and was supplemented by a large -- but unmeasured -- flow of illegal immigrants. Recent estimates place the total of such foreign workers in the nine Common Market nations at more than ten million, and -- despite the slowdown resulting from the recent recession -- some forecasts indicate a further growth to more than 20 million in the 1980's.[1]

By virtually all accounts, these foreign workers have been concentrated in the most undesirable occupations -- "the uncomfortable, unskilled, dirty and dangerous jobs -- the ones that native Western Europeans no longer want to do."[2] There is ample evidence that these workers contributed significantly to the economic growth and rising affluence of the host countries. At the same time, this influx has brought with it a host of major social frictions and costs, including the emergence of new immigrant "ghettoes", growing racial and ethnic frictions and increased crime problems, in some communities.[1]

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[1] Article by Bowen Northrup in Wall Street Journal, February 26, 1975, p. 1.

[2] Ibid. See also, Bernard Kayser, Manpower Movements and Labor Markets, OECD, Paris, 1971, pp. 178-9.

On balance, we must conclude that reliance upon increased immigration of low-skilled workers is one of the least desirable of the options available, and that measures to more effectively control illegal immigration should be adopted. However, any legislation designed to impose sanctions upon employment of illegal aliens already residing here should be tempered with an appropriate "amnesty" clause, designed to legalize the status of those workers who have been employed here for some period of time and whose only "crime" was their original illegal entry. This is desirable both on humanitarian grounds and to reduce the potentials for their exploitation, thus undermining labor standards of other workers.

Educational Policies

The prototype of "educational success" for most young persons has, until now, been considered as synonymous with uninterrupted school enrollment through high school, immediately followed by full-time enrollment in a four-year academic program and -- increasingly -- in further continuous study leading towards advanced academic or professional degrees. Although higher education has many intrinsic values, both for the individual and society, the major expected rewards for most who have entered on this educational path has been the prospect of obtaining a high-level job, with high pay and correspondingly high social status. It has, in fact, produced such rewards for many students who successfully followed this educational routine in past generations.

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[1] For one description of the social tensions accompanying increased immigration of North African workers to France, see: Edward R. F. Sheehan, "Europe's Hired Poor", New York Times Magazine, December 9, 1973. On the other hand, W. H. Bohning has noted that demands for "social capital" are very low initially, for immigrant workers, as compared to domestic workers, but increase as adult male immigrants are joined by their families: (W. R. Bohning and D. Maillat, The Effects of the Employment of Foreign Workers, O.E.C.D., 1974, pp. 103-4).

Yet, increasing numbers of thoughtful educators, as well as students, have come to question the desirability of following this rigid educational routine. Some of the major criticisms of the conventional educational model have been that: (1) it does not conform to the real needs and interest of significant numbers of students, many of whom attend college simply because of parental or other social pressures; (2) it is inherently wasteful, as reflected in the high dropout rates, of 40-50%, between entry and completion of college; (3) it provides little opportunity for contact with the world of work, and therefore does not offer an adequate knowledge base for making career choices; and (4) as a result, there is a further major personal and social cost, reflected in the large proportion of graduates who do not utilize their specialized training in subsequent employment.

The prospective labor market squeeze for future college graduates will, in the absence of corrective measures, intensify these problems in the coming decade. This outlook was one of the central concerns addressed by the Carnegie Commission on Higher Education in its recent comprehensive assessment of major issues facing our nation's higher education system. The following recommendations, adapted from the Commission's reports, are particularly relevant in the present context:[1/]

[1/] See, particularly, Priorities for Action: Final Report of the Carnegie Commission on Higher Education, 1973.

First, manpower considerations should not be used as a rationale for slowing down the momentum achieved in recent years in moving towards an "open access" system of higher education, and in removing remaining inequalities in educational opportunity due to race, sex, family level of income or geographical location. This implies continued vigorous support of measures to increase the number of low cost or no cost community college places, related financial aid programs and special consideration in admissions policies for disadvantaged students, including remedial assistance.

Second, to cope with prospective occupational imbalances, what is needed is a systematic broadening of educational options to young people, generally, including (a) acceptable alternatives to formal college, and (b) options to defer college entry, to step out from college in order to get service and work experience (including more opportunities for part-time enrollment) and to change directions while in college.

The NPA Report strongly endorsed the first of these recommendations, i.e., that manpower considerations not be used as a rationale for encouraging some individuals to curtail their education to the needs of the labor force." It did not directly address the second set of recommendation which provided for acceptable alternatives to the conventional four-year college routine, but -- by implication -- rejected it on grounds that these "run counter to the democratic principle of providing maximum opportunity to all members of society, and they fail to recognize the noneconomic benefits of education as full preparation for full participation in our complex society."[1/]

[1/] Upgrading Low-Level Employment, op. cit., p. 12.

The issue here -- in our judgment -- focuses on a critical assessment of both the benefits to the individual and to society of alternative forms of postsecondary education. There is little doubt that a substantial proportion of college entrants enroll in college because of their expectations that a college education is a necessary condition for entry into higher-paying and higher-status careers. This is particularly true of many students coming from low-income family backgrounds, whose "opportunity costs", in terms of foregone earnings, are proportionately greater than those from more affluent backgrounds. Inevitably, as the relative earnings advantage of a four-year college education declines, many such students -- if not otherwise academically motivated -- will reassess the balance of educational costs and benefits for them. Their perceptions of these costs and benefits are likely to be based primarily on their own observations of actual labor market developments, including advice from families and peers, rather than on formal counselling or on "manpower projections". The perceived choice for many in this dilemma may be viewed as enrolling in a conventional college program or abandoning postsecondary education or training entirely.

If this assessment is valid, strengthening of acceptable alternatives to formal college can, in fact, be an integral part of a comprehensive program for readapting existing educational institutions in the light of both individual and social needs. A necessary condition for the acceptability of those alternatives, however, is reduced emphasis on the part of employers upon conventional educational certification, such as a four-year college diploma, and increased reliance upon alternative criteria, for selection and promotion, such as specialized training, experience and performance.

C. Concluding Observations

The above brief summary of policy issues which have some relevance to the findings of this study will serve to illustrate that those concerned with policy planning, whether in government or in the private sector, rarely arrive at their judgments -- and should not -- based upon any simple set of criteria, such as labor market trends or manpower projections. To the extent that these projected trends materialize, or are given credence, it is reasonable, however, that they be included as parameters in assessing courses of action.

It is appropriate, too, that we note some of the major limitations of available data and research relevant to this subject area. Comprehensive data on occupational labor supply and on occupational employment trends are only available -- in the needed disaggregate form -- from the decennial Censuses of Populations. These suffer from serious limitations, particularly in view of non-comparability of data in successive Censuses. Very limited periodical information is available, too, on the flows of workers into and among occupations, on unemployment and job vacancies by occupation and on occupational wage rates.

The amount of analytical research on occupational supply is also quite limited. For example, a comprehensive bibliography of occupational labor supply studies lists 62 recent analytical studies of individual occupations and occupational groups.[1] These are almost entirely focused on professional and technical occupations. With the exception of the present study, only that by Peter Mattila -- a contributor to the present report -- also focuses on lower level occupations. It is our hope that the many unresolved technical problems addressed in the current effort will be the subject of more intensive research by future investigators.

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[1] *Occupational Supply: Concepts and Sources of Data for Manpower Analysis*, U.S. Bureau of Labor Statistics, Bulletin 1816, 1974, pp. 62-69.

Technical Appendix to Chapter III

As noted in the text of this report, the 1970 decennial Census of Population introduced major changes in occupational classification, enumeration, and data processing procedures, whose combined effect was to cause a serious discontinuity in the published occupational statistics as compared to 1960 and preceding Censuses. Although a statistical "bridge" with the 1960 occupational statistics was published by the Census Bureau in the form of a retabulation of the 1960 Census occupational data in accordance with 1970 Census classifications, the revised 1960 statistics did not provide any detail on the characteristics of the labor force in each "1970-comparable" occupation other than by sex and therefore were inadequate for use in the present study. Moreover, full comparability with the published 1970 data was not achieved by the Census Bureau, because the procedure followed did not allow for the effects of the concurrent changes in enumeration and processing procedures upon the number of workers reported in each occupation in 1970 as compared to 1960.

This Appendix reviews evidence concerning the effects of these revisions on inter-censal comparability and describes the procedures followed to adjust for the resulting biases in development of the occupational labor supply matrices for 1960 and 1970, presented in Chapter III of this report.

A. Revisions in Census Occupational Classifications and Procedures

The following major revisions affecting occupational statistics were introduced in the 1970 decennial Census:

1. The number of detailed occupations was expanded from 297 in 1960, to 441 in 1970, with concurrent revisions in the definition of many of the existing (1960) occupations. A new major occupational group, "Transport Equipment Operatives" -- previously included among "Operatives and Kindred Workers" -- was established.

2. To obtain more complete and accurate responses on occupations, two additional occupation-related questions were included on the 1970 Census questionnaire. In 1960 and preceding censuses, a worker's occupation had been classified based on responses to a single question concerning "the kind of work the person was doing" during the Census reference week, if employed, or in that person's last previous job, if unemployed. The 1970 Census schedule, in addition, requested a description of "his most important activities or duties" and his job title, with appropriate examples.

3. A number of computer-based allocation and editing procedures were introduced. In 1960, persons for whom insufficient information was provided to prevent their classification in a specific occupation had been tabulated in a "not reported" category. In 1970, such persons were allocated to a major (1-digit) occupation group based on their residence, age, income, industry of employment and similar characteristics. Other 1970 processing innovations included computer editing of clerically assigned codes and the use of tabulation categories to regroup certain occupations, i.e., apprentices.

4. Another revision, not directly related to occupational classification, was the addition of the category "own-business-incorporated" to the class of worker item, on the 1970 Census questionnaire, which resulted in decreasing

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the number of self-employed and increasing the number of wage and salary workers. This change may also have affected inter-censal comparability of classification of persons in the 1960 occupation group, "Managers, Officials and Proprietors, except Farm" -- which was redesignated as "Managers and Administrators, except Farm" in the 1970 Census.

B. Effects of Census Revisions on Inter-Censal Occupational Comparability

In order to provide measures of occupational trends between 1960 and 1970, a 100,000 card sample of the 1960 Census experienced civilian labor force containing the occupations, industry and class of worker entries from the 1960 Census schedules was recoded in terms of the revised 1970 occupational classifications. This has provided the basis for published estimates of the 1960 distribution of the experienced civilian labor force "comparable to" 1970 occupational data. The results of this cross-tabulation of 1960 Census occupational data, showing the derivations of workers classified under each 1970 occupational title, in terms of their original 1960 occupational classifications, have been published in a Census Bureau technical report.1/ Since these revised statistics provided no detail on characteristics of workers classified under the revised 1970 titles other than sex, they could not be directly incorporated into the present study. This dictated an initial grouping and matching of the relevant 1960 and 1970 Census occupational titles in such a manner as to minimize incomparabilities resulting from definitional changes, as well as development of adjustment procedures to minimize the effects of all of the concurrent changes in Census occupational data editing and processing upon comparisons of labor force trends by occupation.

Initial inspection of the effects of definitional changes, alone, upon 1960-70 Census comparability indicated that these revisions had been very extensive, affecting many occupational titles which appeared in both the 1960 and 1970 classifications, as well -- obviously -- as those which had been further disaggregated in 1970 or otherwise changed in their defined scope. Even though most of the changes were, by design, limited to revisions and reallocation within the major Census occupational groups, the effects on net comparability of the latter groups were still substantial as illustrated by an increase of over 50% in the relatively small group of women classified as non-farm laborers and by increases in the number of men classified as service workers (7%) and as operatives (5%).[2] The effects of the definitional changes were particularly severe in the case of many of the specified occupations in the operatives group, other than transportation equipment operatives, as a direct result of the efforts of Census staff to reduce the large numbers previously shown in the category, "Operatives, Not Elsewhere Classified," which had accounted for 4.6 million or nearly two-fifths of all workers included in the 1960 operatives group. Thus, although the occupational title "Assemblers" appears both in the 1960 and 1970 classifications, the number of workers in the 1960 Census classified as assemblers increased from 685,000 to 786,000 or by 15%, mainly due to reclassifications of workers previously identified as "Operatives, N.E.C.."

Much less direct information is available on the effects of the other procedural changes introduced in 1970 upon inter-censal comparability of occupational data. One of the most significant of these changes was the addition of two questions to the 1970 Census schedule designed to provide more precise information on occupational duties and job titles. Between July and October 1971, the Census Bureau conducted a reinterview survey of 4500 individuals included in its current CPS sample, who had been originally classified based on the single question appearing in the 1960 schedule. It was found that, for all occupations, the addition of the two new questions of the 1970 Census schedule resulted in an increase of 2.2% in the number of workers who could be assigned a specific occupational code. However, the small size of the sample did not permit disaggregation of these relationships below the major Census occupational group level. Moreover, interactions between changes due to definitional changes and those due to changes in Census schedules could not be estimated from this data base.

In the absence of a more definitive measure of the combined effect of all of the revisions in Census occupational classification, enumeration, and processing procedures, we relied upon an indirect measure of the resulting biases, based on data from the Census Bureau's Current Population Survey (CPS). The CPS, unlike the 1970 decennial Census, had retained the original (1960) Census classifications as well as the single question used in the 1960 Census to describe an individual's occupation until January 1971. It was, therefore, possible to use comparisons of the trend of the experienced civilian labor force, by occupation, between the decennial survey months (March 1960 and March 1970, respectively) as shown by the CPS, and as shown by the decennial Census data, as a measure of the probable bias in the latter data resulting from definitional and procedural changes. These comparisons are shown in Table 75, for the experienced civilian labor force by sex, classified by the eleven major occupational groups and the 22 subgroups for which CPS distributions were available

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Table 75

Comparison of Relative Changes[1] in Experienced Civilian Labor Force, 16 Years and Over,
by Occupation, March 1960-March 1970
Current Population Survey vs. Census of Population

Occupation	Both Sexes			Males			Females		
	CPS a/	Census	CPS/ Census 2/	CPS a/	Census	CPS/ Census 2/	CPS a/	Census	CPS/ Census 2/
EXPERIENCED CIVILIAN LABOR FORCE, TOTAL	1.177	1.194	.9857	1.1010	1.0809	1.0186	1.3708	1.3591	1.0086
Professional, Technical and Kindred, Total	1.4975	1.5067	.9939	1.4285	1.4612	.9776	1.6172	1.5807	1.0231
Farmers, Farm Managers, Unpaid Family Workers, Total	.6384	.5719	1.1163	.6185	.5756	1.0746	.7775	.5327	1.4595
Non-Farm Managers, Officials and Kindred, Total	1.1852	1.1343	1.0449	1.1707	1.1056	1.0588	1.2719	1.3035	.9758
Clerical and Kindred, Total	1.4381	1.3996	1.0275	1.1270	1.1292	.9981	1.5892	1.5302	1.0386
Secretaries, Typists Stenographers	1.4896	1.6946	.8790				1.5150	1.6970	.8928
All Other Clerical Workers	1.4216	1.3062	1.0884				1.4540	1.4427	1.0078
Salesmen and Sales Workers, Total	1.1178	1.1015	1.0148	1.0220	1.0487	.9745	1.2778	1.1940	1.0702
Craftsmen and Kindred Workers, Total	1.1681	1.1295	1.0341	1.1577	1.1051	1.0476	1.6068	1.9442	.8265
Carpenters	1.0000	.9924	1.0077	.9934	.9837	1.0098			
Foremen, n.e.c.	1.2701	1.3514	.9398	1.2535	1.3312	.9416			
Mechanics, Auto	1.2405	1.3278	.9343	1.2377	1.3110	.9441			
Mechanics, Excl. Auto	1.3012	1.0488	1.2407	1.2940	.9442	1.3705			
Machinists, Job Setters									
Construction, Craftsmen, Excl. Carpenters	1.1605	1.0913	1.0634	1.1634	1.0807	1.0765			
All Other Craftsmen	1.0557	1.1964	.8824	1.0316	1.1467	.8996			
Operatives and Kindred Workers, Total	1.1326	1.0704	1.0581	1.0820	.9917	1.0911			
Drivers, Deliverymen	1.0720	1.0150	1.0562	1.0332	.9777	1.0568	1.2585	1.2721	.9893
All Other Operatives	1.1462	1.0835	1.0579	1.0986	.9966	1.1023			
Service Workers, Excl. Private Household, n.e.c.	1.3093	1.4446	.9063	1.0873	1.3551	.8024	1.5070	1.5257	.9877
Waiters, Cooks, Bartenders	1.3236	1.2893	1.0266	1.0611	1.2198	.8699	1.4329	1.3185	1.0868
Protective Services	1.2240	1.3635	.8976	1.2003	1.3333	.9002	1.5499	1.6815	.9170
Other Service Workers	1.3196	1.5514	.8506	1.0405	1.3789	.7546			
Private Household Workers, Total	.7672	.6612	1.1603				.7668	.6648	1.1534
Farm Laborers and Foremen, Excl. Family Workers, Total	.7376	.5987	1.2320	.7386	.5912	1.2493	1.0796	1.4244	.7579
Non-Farm Laborers, Total	.9932	.9804	1.0130	.9780	.9310	1.0505			

Note: Occupational detail not shown where base numbers were less than 50,000.

1/ The relative changes in this table has been expressed in ratio form. Thus the 1970/60 relative for the total experienced civilian labor force of 1.177 corresponds to a percentage increase of 17.7%.

2/ "CPS Census" is the ratio of the CPS change, 1960-70, to the Census change 1960-70. Thus the adjustment factor for male professional, technical and kindred workers of .9776 indicates that the growth of this group between 1960 and 1970 as reported by CPS (1.4285) was less than that reported by the Census (1.4612).

Sources: CPS - Unpublished BLS Table 24, "Employed and Unemployed Persons by Detailed Occupation Group and Sex," March, 1960 and March, 1970; Census - 1960 data from U.S. Census of Population, 1960, PC(2)7A - Occupational [illegible], Table 4; 1970 data from U.S. Census of Population PC(2)[illegible], Occupation by Industry, Tables [illegible]. [illegible] Census and CPS data for 1960 adjusted to exclude the labor force aged 14-15 years, based on their occupational distribution in the 1960 Census (from PC(2)7A, Table 4).

on both dates. The "adjustment factor" shown in this table represents the ratio of the 1960-70 percentage changes (or ratios), by occupation, based on the CPS to the corresponding 1960-70 changes, based on decennial Census data. Despite the greater sampling error inherent in the CPS data, the trends based upon the latter source were considered more reliable measures of 1960-70 occupational trends for "1960-comparable" occupations.

The comparisons (or "adjustment factors") shown in Table 75 were found to be large and statistically significant for a substantial number of occupational groups, including farmers and farm laborers, service workers, private household workers and non-farm laborers, in contrast to smaller differences for most of the white collar and craftsmen occupational groups or subgroups.[3]

C. Derivation of Matched 1960-70 Occupational Titles and Subgroups

Although the CPS data provided a reasonable basis for estimating overall trends in the labor force by occupation between 1960 and 1970, it was still necessary to rely upon the decennial Census data for detail on trends in the demographic composition of the labor force in each occupation, as well as for more detailed occupational breakdowns than available for the CPS. As an initial step, all relevant occupations in the 1960 Census were tentatively ranked in status order based on an average of three criteria: the Duncan S.E.S. scale, the Siegel prestige scale and the percentage of non-whites in each occupation in 1960. This served as a guide in combinations of related occupations where needed, to provide a minimum 1960 total of at least 250,000 workers in each occupation, since this was considered the minimum feasible base number for analysis of 1960-70 changes of major demographic characteristics, such as sex, race and broad educational level groups, by occupation, using the 1/1000 Census samples.

Estimates of net occupational comparability were computed for these occupations or occupational clusters based on data from the Census occupational matching study. As a general rule, an attempt was made to limit 1960-70 "comparable" occupations or groupings, to those which met a criterion of 90% or greater net definitional comparability under the 1960-70 recoding study. This criterion was adopted on the premise that within a ± 10% range, we could expect limited distortion in comparability of the distribution of workers in each occupation by such characteristics as race, age and educational level. (To illustrate, even though the major 1960 group of "service workers, excluding private household" was increased by 5.6% under the 1970 classification criteria, the percentage of women in this occupational group changed by only 0.8 percent, from 52.4% to 51.6%.) The only significant deviation from this criterion was made in the case of service workers in the "cleaning and building services" subgroup, such as janitors, cleaners, charwomen and chambermaids. An examination of the detailed changes in occupational definitions for these occupations suggested that the definitional changes had probably resulted in reclassification into these occupations of individuals with characteristics similar to those previously classified in these groups, and therefore, should not appreciably affect the resulting distributions. (The largest of these changes consisted of a reclassification of about 134,000 men building maintenance workers or handymen, who had been previously classified as "craftsmen" in 1960, and were reclassified into the janitorial occupation in 1970.)

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The results of this analysis are shown in Table 76, which identifies the specific "1960-70 comparable" occupations or occupational subgroups developed under these criteria. It will be noted that only limited detail is provided for "high-level" occupations such as professional and technical workers and managerial occupations, in view of our primary interest in "lower level" occupations. As indicated, the "net comparability" index for each of the selected groups falls within the 90-110 range, with the exception of the "cleaning and building services" occupational group.

One consequence of the criteria established was to cause the combination of many specific occupations into large combined groupings, such as "all other operatives" and "non-farm laborers." These large groups were, however, disaggregated by a total of 7 broad industry groupings for operatives, n.e.c., and 5 groupings for non-farm laborers, as shown in Table 3. The industrial combinations used for this purpose were established after inspection of available data on inter-industry differences in: (1) full-time earnings; (2) prestige ratings, and (3) training requirements, as well as on sample size considerations.

The adjustment factors by sex based on the comparison of CPS and Census trends for matched occupational subgroups (Table 76) were, in turn, used to adjust the 1970 experienced civilian labor force totals and socio-demographic components of these occupations, as derived from tabulations of the 1970 Census public-use tapes. The final step in this adjustment was a statistical balancing procedure to "force" resulting totals for each socio-demographic subgroup, (e.g., non-white males, aged 16-24 years, with 12 years of education) to correspond to the total number of experienced civilian workers in this category as derived from our tabulations of the 1970 decennial Census tapes.

Table 76

Net Comparability of 1960 and 1970 Census Occupational Definitions for Major Occupational Groups and Specified Occupations, Based on 1960 Census Data

Occupation Group	Experienced Civilian Labor Force, 1960, in (000) a/			Net Comparability b/	Sources of Major Change (000) c/	
	1960 Definition (1)	1970 Definition (2)	Change: (2)-(1)	((2)/(1)x100)	Gains From (+):	Losses To (-):
Professional, Technical and Kindred Workers, Total	7336	7090	-246	97	Service Occupations (42), Clerical Occupations (31), Craft Occupations (18)	Managerial Occupations (178), Service Occupations (81), Clerical Occupations (50)
Engineers	872	870	- 2	100		
Medical Personnel	1326	1283	-40	97		Service Workers (58)
Teachers, n.e.c.	1682	1765	+83	105	Craftsmen (13), Professional (90)	
All Other Professional and Technical Workers	3456	3172	-284	92		
Non-Farm Managers, Officials and Proprietors, Total	5490	5708	+218	104	Professional (178), Clerical (64)	Professional (11), Service (9)
Farmers and Farm Managers, Total	2528	2528	---	100		
Clerical and Kindred Workers, Total	9618	9431	-187	98	Professional (50)	Service Workers (71), Managers (64), Operatives (43), Sales (40)
Bookkeepers	936	951	+15	102	Clerical (15)	
Secretaries, Typists, Stenographers	2313	2316	+ 3	100		
Office Machine Operators	318	322	+ 4	101	Clerical (4)	
Telephone Operators	372	372	---	100		
Cashiers	492	510	+18	104	Clerical (17) Sales (6)	Clerical (6)
Mail Carriers and Postal Clerks	420	440	+20	105	Clerical (22)	Operatives (3)
Shipping and Receiving Clerks, Messengers and Office Boys	361	388	+27	108	Clerical (31)	Clerical (5)
All Other Clerical Workers	4406	4132	-274	94		
Sales Workers, Total	4801	4799	- 2	100	Clerical (40), Professional (18)	Laborers (55), Clerical (7)
Craftsmen and Kindred Workers, Total	9241	9465	+224	102	Operatives (395), Professional (20)	Service Workers (142), Operatives (44)
Foremen, n.e.c.	1199	1186	-13	99		Professional (13)
Mechanics and Repairmen, Excluding Auto	357	381	+24	107		Craftsmen (23)
Metal Working Crafts, Excluding Machinists, Mechanics	611	601	-10	98	Craftsmen (9)	Craftsmen (22)
Electricians, Brickmasons, Excavating Machine Operators, etc. d/	1181	1158	-23	98	Craftsmen (12), Laborers (13)	Operatives (50)
Machinists	516	511	- 5	99		

Table 76

(continued)

Net Comparability of 1960 and 1970 Census Occupational Definitions for Major Occupational Groups and Specified Occupations, Based on 1960 Census Data

Occupation Group	Experienced Civilian Labor Force, 1960, in (000) a/			Net Comparability b/	Sources of Major Change (000) c/	
	1960 Definition (1)	1970 Definition (2)	Change: (2)-(1)	((2)/1)x100)	Gains From (+):	Losses To (-):
Carpenters	921	930	+ 9	101	Operatives (17), Craftsmen (2)	Craftsmen (12)
Auto Mechanics	705	682	-23	97		Craftsmen (-23)
Construction Painters, Plasterers, Cement and Concrete Finishers, Roofers, Paperhangers	589	568	-21	96	Craftsmen (17)	Craftsmen (37)
All Other Craftsmen	3162	3448	+286	109		
Operatives and Kindred Workers, Total	12846	12254	-592	95	Laborers (68), Craftsmen (44), Clerical (43)	Craftsmen (395), Laborers (295)
Deliverymen, Routemen	441	462	+21	105	Operatives (25), Craftsmen (2)	Laborers (7)
Checkers, Examiners	518	554	+36	107	Clerical (32), Operatives (8)	
Taxi Drivers, Bus Drivers, etc. e/	552	550	- 2	100		
Auto Service Workers and Parking Attendants	379	393	+14	104	Laborers (39), Operatives (6)	Operatives (31)
Truck and Tractor Drivers	1663	1550	-113	93	Operatives (1), Clerical (3)	Operatives (118)
Packers	497	458	-39	92	Operatives (11), Clerical (4)	Operatives (35), Laborers (13)
Welders and Flame-cutters	359	359	---	100		
Laundry and Dry Cleaning Operatives	410	433	+23	106	Operatives (79)	Operatives (19), Laborers (32)
All Other Operatives	8027	7495	-532	93		
Non-Farm Laborers, Total	3530	3755	+225	106	Operatives (251), Sales (56)	Operatives (68), Service (30), Craftsmen (14)
Farm Laborers and Farm Foremen, Total	1560	1604	+44	103	Operatives (41)	
Paid Farm Workers (and self employed)	1247	1294	+47	104	Operatives (41)	
Service Workers, Total	7590	7902	+312	140	Craftsmen (142), Professionals (81), Clerical (70), Operatives (38)	Managers (42), Laborers (12)
Protective Services: Policemen, Firemen, etc.	424	431	- 7	102	Clerical (6)	
Guards and Watchmen, Crossing Watchmen and Bridge Tenders	282	288	+ 6	102	Operatives (8), Clerical (2)	Services (6)
Health Services: Hospital Attendants	408	420	+12	103	Professional (8), Services (8)	Services (4)

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Table 76
(continued)

Net Comparability of 1960 and 1970 Census Occupational Definitions for Major Occupational Groups and Specified Occupations, Based on 1960 Census Data

Occupation Group	Experienced Civilian Labor Force, 1960, in (000) [a]			Net Comparability [b]	Sources of Major Change (000) [c]	
	1960 Definition (1)	1970 Definition (2)	Change: (2)-(1)	((2)/1)x100)	Gains From (+):	Losses To (-):
Food Services:	1999	2023	+ 24	101	Services (36)	Services (12)
Cooks, Except Private Household	599	603	+ 4	101	Services (3), Operatives (3)	
Waiters and Counter and Fountain Workers	1063	1067	+ 4	100	Services (4)	
Kitchen Workers	337	353	+16	105	Services (29)	Services (12), Laborers (1)
Private Household Workers:	1813	1776	-37	98	Services (28)	Services (64)
Housekeepers and Babysitters	502	529	-27	105	Services (28)	
Private Household, n.e.c., Including Laundresses	1311	1247	-64	95		Services (64)
Cleaning and Building Services:	1231	1467	+236	119	Craftsmen (134), Services (70), Operatives (24)	
Janitors and Sextons	621	785	+164	126	Craftsmen (134), Laborers (13)	
Cleaners, Charwomen, Chambermaids, Porters, Elevator Operators	610	682	+72	112	Services (50), Operatives (24), Laborers (15), Services (20)	Services (22), Laborers (15)
All Other Service Workers	1374	1438	+64	105		

Source: Adapted from unpublished Census Bureau tabulations and from John Priebe, Joan Heinkel and Stanley Greene, "1970 Occupation and Industry Classification Systems in Terms of Their 1960 Occupation and Industry Elements." U.S. Department of Commerce, Bureau of the Census, Technical Publication 26, July 1972.

[a] Data on the ECLF by occupation, based on 1960 definitions, are from the U.S. Bureau of the Census, 1960 Census of Population, Occupational Charecteristics, PC(2)7A, Table 1. Data based on the 1970 definitions are from Priebe et al., op. cit., and from unpublished Census Bureau tabulations.

[b] "Net comparability" measures the net effect of 1970 changes in definition of detailed occupations upon the 1960 ECLF in these occupations, expressed as a ratio of the original 1960 estimates (multiplied by 100).

[c] The "major" gains and losses itemized in this column add up to approximately 85% of the net definitional change (in column 3) and 95% of the gross change.

[d] Includes electricians, brickmasons, excavating, grading and road machinery operators, plubmers and pipefitters, structural metalworkers.

[e] Includes taxi drivers, bus drivers, railroad conductors, subway motormen, railroad brakemen, railroad switchmen, mine motormen, sailors and deck hands, boatmen and canalmen.

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D. Sampling Error

The approximate standard errors of percentages derived from the tabulations of the Census 1/1000 Public Use Samples for 1960 and 1970 are shown in Table 77.

Table 77

Approximate Standard Error of Estimated Percentage*
-- 1-in-1000 Sample

Estimated Percentage	Estimated Number of Persons or Households in Base of Percentage (in thousands)											
	25	50	100	250	500	1000	2500	5000	10,000	25,000	50,000	100,000
1% or 99%	—	1.4	1.0	0.6	0.4	0.31	0.20	0.14	0.10	0.05	0.04	0.03
2% or 98%	2.8	2.0	1.4	0.9	0.6	0.44	0.28	0.20	0.14	0.09	0.06	0.04
5% or 95%	4.4	3.1	2.2	1.4	1.0	0.69	0.44	0.31	0.22	0.14	0.10	0.07
10% or 90%	6.0	4.2	3.0	1.9	1.3	0.95	0.60	0.42	0.30	0.19	0.13	0.10
15% or 85%	7.1	5.0	3.6	2.3	1.6	1.13	0.71	0.51	0.36	0.23	0.16	0.11
20% or 80%	8.0	5.7	4.0	2.5	1.8	1.26	0.80	0.57	0.40	0.25	0.18	0.13
25% or 75%	8.7	6.1	4.3	2.7	1.9	1.37	0.87	0.61	0.43	0.27	0.19	0.14
35% or 65%	9.5	6.7	4.8	3.0	2.1	1.51	0.95	0.67	0.48	0.30	0.21	0.15
50%	10.0	7.1	5.0	3.2	2.2	1.58	1.00	0.71	0.50	0.32	0.22	0.16

Source: U.S. Department of Commerce, Bureau of the Census, "Public Use Samples of Basic Records from the 1970 Census: Description and Technical Documentation." (Government Printing Office, 1972, p. 187.)

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Footnotes

1/ John A. Priebe, Jean Heinkel and Stanley Greene, *1970 Occupation and Industry Classification Systems in Terms of Their 1960 Occupation and Industry Elements*, U.S. Bureau of the Census, (Technical Paper 26), G.P.O., Wash. D.C., 1972.

2/ *Ibid.*, Table A.

* U.S. GOVERNMENT PRINTING OFFICE:1976-211-136/1662

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